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PROPOSED CHANGES IN THE U. S. PHARMACOPŒIA.

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In considering the expediency of making some alterations in the plan of the Pharmacopœia, the criticisms and suggestions offered by Dr. Squibb in his published pamphlet demand the first attention.

I. Commencing with the *process* of its revision, it is admitted that the organic body charged with its control can best discharge its function through the agency of a subordinate executive commission; and the proposed "council of five" (pp. 13, 25 and 40 of pamphlet) does not differ essentially from the existing "committee of revision," excepting in size. That so important a standard should, in its perfected form, represent the combined knowledge and wisdom of a larger number than five will, it is thought, be generally admitted, and in this respect the suggested change cannot be regarded as an improvement. It is acknowledged by Dr. Squibb that "no council of five men could embrace all the knowledge necessary to the formation of the Pharmacopœia;" (p. 29.) but it is urged that "it might embrace all the knowledge necessary to obtain the services of men who could do the work, and to direct, check and guard the results." How much better it must be, however, for the commission itself to be able to do this work. "How many are necessary to give that diversity of character, of knowledge and of experience and taste, whose average makes up sound judgment. No such result can be expected from a very small body, because it cannot contain the elements necessary; while in large bodies the difficulties of harmonious agreement and action, increased by the difficulties of securing prompt attendance at meetings, overbalance the advantages of greater aggregate ability." (p. 47.) If

practically there has been difficulty in securing the attendance and co-operation of a large number of active workers in the committee, this should be remedied by a careful selection by the Convention of those both qualified and willing to serve faithfully on this responsible work.

Such a commission, "charged with the entire work, should be authorized to employ one or two editors or secretaries; perhaps two during the general revisions and one permanently. These should be experts, competent to do all the detail work under the direction of the council, and should submit the prepared work at the meetings of the council. These officers of the council should be liberally paid for their services, but should have no vote in the council, and perhaps one of them should be permanently employed, entirely and solely in the interest of the Pharmacopœia, under the absolute direction and control of the council. There should be no salaries paid to the council; but actual traveling expenses should be paid. And all expert labor necessary to the work should be liberally paid, and the best experts only should be employed." (p. 9.)

To these propositions no reasonable objections could be made. The sacrifice of time required by the members of the commission, in their frequent and prolonged labors, is a sufficiently onerous tax, without entailing upon those living at a distance from the place of session the pecuniary outlay which few could well afford. Most heartily, therefore, do we approve the plan that "actual traveling expenses should be paid" to all members of the revising committee, in order to secure as wide a *geographical* representation as possible.

In the further elaboration of his scheme, however, Dr. Squibb arrived at the judgment that "the labor involved in bringing the Pharmacopœia up to the level of pharmaceutical progress at the times for its revision has always been great, and increasing rapidly with each revision, has now become very great, far too great to be required or expected from any committee of revision acting voluntarily and gratuitously, while no adequate provision has ever been made for paying for the labor involved." (p. 11.) If to this be opposed the testimony "that the plan of revising the Pharmacopœia by this Convention has been eminently successful and sufficient up to 1850 or 1860 will not be doubted by any reasonable person, for the testimony of the great mass of the profession will be heartily, promptly and thankfully

accorded to this proposition;" (p. 33.) the writer labors as unaptly, as ungraciously to maintain the curious thesis that the able and distinguished men who so conscientiously and industriously served on the earlier Committees of Revision did not contribute their voluntary and unpaid toil, as has generally been supposed, but that they did their work well only because indirectly they were well paid!

"When the work was mainly and so admirably done by Drs. Wood and Bache in the past, it was well and amply paid for by the *subordination* [!] of the Pharmacopœia to the Dispensatory of these authors, which latter as a private book of its authors has been deservedly one of the most popular, most useful and most lucrative books of the age." (p. 11.) And this Dispensatory "overshadowed as well as embraced the Pharmacopœia, so that comparatively few persons knew of the existence of the latter as a separate and as the authoritative book. Hence the success of the Pharmacopœia depended on its trustworthiness and utility to the profession, and these qualities were only realized through the Dispensatory and its authors; and they, by the pecuniary success of their books were well paid for their labors on both books!" (p. 33.)

This is surely an extraordinary allegation to sustain a theory. The Pharmacopœia was "eminently successful and sufficient up to 1850 or 1860," *because* two of its laborious revisers "subordinated" it to a Dispensatory! "Its trustworthiness and utility to the profession" were secured by its being comparatively unknown and "overshadowed" by the "private book of its authors"! Well may it be said that the incoherence of logic in these remarkable utterances is equaled only by the inaccuracy of their assumptions. What possible meaning can be attached to the phrase "the subordination of the Pharmacopœia to the Dispensatory"? And in what possible way could the "admirable" work on the former be "amply paid for" by such subordination? Has some ingenious prestigiation been successful—at the same time—in "admirably doing" the Pharmacopœia and in leaving it helpless and undone? Such would seem to be the inevitable implication. Referring to the first appearance of the Dispensatory as a commentary on the Pharmacopœia of 1830, our author says: "From that time the Pharmacopœia became a mere skeleton or outline of the materia medica, and was of so little use without the Dispensatory—while this latter embraced its text with very much other

valuable matter—that it had no sale or demand, while the Dispensatory, based upon it, became one of the most successful medical books ever published. So completely did it overshadow and in effect suppress the Pharmacopœia that, until within the last ten years, very few in either the medical or pharmaceutical professions knew of its existence separate from the Dispensatory." (p. 16.) The language at the commencement of this passage is noteworthy: "From that time—*became* a mere skeleton!"

Such is Dr. Squibb's estimate of a "plan which has *worked well* for more than fifty years!" (p. 4) "Up to 1860 inclusive, it was accepted as the best attainable authority!" (p 39) The Pharmacopœia revision has been "so *admirably* done by Drs. Wood and Bache in the past," (p. 11.) that under the fostering care of these two eminent physicians it "became a mere skeleton"! and was "in effect suppressed"! In what more favored regions of the earth, beneath what fairer and more genial skies, under what more faithful tendance and careful nurture by the learned medical profession will Dr. Squibb seek to find a Pharmacopœia endowed with a healthier life or developed with a fleshier fulness?

It needs not the sentiment of personal respect and admiration for these two honored names (so strangely misconceived) to call forth a vindication of their labors and their influence. Can any unbiased mind suppose that the far-famed Drs. Wood and Bache "were indirectly well paid for their labor by this plan of making a Pharmacopœia which should require a Dispensatory, and then making a Dispensatory as a private and profitable enterprise, whose success depended on its being still more profitable to those who bought and used it than to its authors"? (p. 12.) With what shadow of propriety — with what pretence of plausibility—can it be affirmed or intimated that the Dispensatory would have been *less* valuable, *less* popular, *less* profitable—if the Pharmacopœia had been badly revised, or if the edition of 1820 had never been revised at all? How can that which earned success by "being still more profitable to those who bought and used it," by any possibility have rewarded its authors for labor *otherwise* bestowed?

As an humble member of the Revision Committee of 1860, it was the writer's fortune to be an intimate witness of the laborious care and the critical acumen with which these earnest Nestors of their profession applied themselves to their prolonged and wearisome duties, intent

only to secure for their cherished work the excellences of foreign Pharmacopœias and to exclude their defects. How far their scrupulous labors were successful, it is refreshing to learn from the unquestionable evidence of one whom no schemes of reformation had bewildered. In his elaborate report on this work, presented to the American Pharmaceutical Association in 1869, Dr. Squibb has offered his unsuspected testimony "that as it stands to-day it is equal with any Pharmacopœia of the world. . . . . Its merits have spoken for themselves, and it neither needs nor admits of laudation, if we have a proper respect for its dignity and authority."[1]

To the illustrious authors of the *Dispensatory*, however, the professions of medicine and of pharmacy owe an additional debt, but poorly paid by any emoluments derived from their justly celebrated work. Especially to its influence is largely due the elevation of Pharmacy in this country to the scientific standing of a profession.

It is unquestionably true, therefore, that "this work of revision has always been done gratuitously." (p. 4.) And a "plan which has worked well for more than fifty years is entitled to so much respect that it becomes a matter of grave doubt as to whether it can be wisely disturbed." (p. 4.)

It is maintained, however, that the success of the Pharmacopœia "has depended less on the plan than on the men who originated it and carried it out." We believe, on the contrary, that its success has depended mainly on the excellence of its plan; and we further venture the opinion that a commission of ordinarily good ability, and of ordinarily good training, if large enough "to give that diversity of character, of knowledge, and of experience whose average makes up sound judgment," will, in the execution of a judicious plan, produce a much more valuable standard for professional guidance, than a council of exceptional talent and knowledge can do on any imperfect or inadequate system.

Notwithstanding that the last revision (of 1870) has, in Dr. Squibb's fancy, "lost so much ground as to make some movement of reform imperative," (p. 39.) he charitably concludes that "the present Pharmacopœia is as good as could be justly expected, and that its defects may be in a great measure chargeable to an attempt to get important

[1] Proceedings American Pharmaceutical Association, 1869, vol. xvii, p. 348.

labor, which but few have the knowledge and skill to render, without paying for it." (p. 11.) "The last committee of final revision . . had the necessary ability, but they did not give the necessary labor to the work, or at least the work as done leads directly to this conclusion." (p. 34.)[1] Therefore, difficult as it would be, "with all the caution that could be used" to organize the council of five, the hope is expressed that it "might not be impracticable if the labor could be paid for in reputation *and in money*, as it should and must be to be successful." (p. 14.) And one reason given for limiting the council to five is that "it is doubtful whether the income could ever be made sufficient to adequately pay for more than one competent editor to do the continuous detail work, and five members or councillors for the intermittent duties." (p. 15.) "Each member should be paid, from the first, his actual expenses of attending such meetings, and as the income should increase, be paid for his services, over and above his expenses, at say so much for each meeting attended. The income from the work of such a council would in two or three years adjust itself." (p. 25.)

From all these conclusions we must entirely dissent. We believe that the experiment of complicating existing jealousies with the personal struggles stimulated by greed of gain, would be fraught with evil only, and would not be likely to improve the national standard of the materia medica. To permit the copyright of such a publication to be in the absolute ownership of the compilers—as a commercial speculation—for their own emolument and recompense, with the tempting field of profitable advertising spaces so accessible, would, in our judgment, be productive of results vastly more deplorable than any "mercantile bias" of some enterprising pharmacist of the future, eager to impose his preparations on the Pharmacopœia. Hitherto the Committee of Revision can proudly say that they have had no pecuniary interest whatever in the publication. The copyright has been held as a sacred trust for the Convention, and its possible profits have been entirely devoted to cheapening the book for the public.

In this admission of the lack of speculative shrewdness thereby be-

[1] It is only necessary to say in answer to this, that the labors of this committee occupied very many sessions, often lasting late at night, with a large amount of intermediate preparatory work by the members separately, and extended over a period of twenty-four months.

trayed, we are not disposed quite so readily to accept the impeachment that from this weakness in the committee, its last revision has "lost so much ground" as to justify the so-called "reform." Let us look the matter fairly in the face. We are informed that the first four revisions of the Pharmacopœia "had no sale or demand," and that "*until* within the last ten years very few in either the medical or pharmaceutical professions knew of its existence." (p. 16.) Evidently something or somebody is at fault here! Either the critic is wrong in saying that "up to 1860, *inclusive*, it was accepted as the best attainable authority, and was received and respected as such," (p. 39.) or, we fear that the revision committe of 1870 cannot escape the charge of having maliciously caused the fifth and last edition of the work to attain "within the last ten years" a prominence so unusual, when, according to all the requirements of the situation, it should have been "losing ground!"

Another important suggestion bearing on the process or method of the work has reference to the *frequency* of the revision. "A revision of the Pharmacopœia every ten years may have been quite often enough in 1820, '30 and '40, and even in 1850, but outside of its present organization, it has since that time been generally believed that in order to keep pace with the more rapid progress of general medical science, the revisions should be more frequent." (pp. 4, 5.) "The council should make a general revision of the Pharmacopœia at least once in five years." (p. 17.) By "making a revision every five instead of ten years (subsequently perhaps even oftener than that) we should be able to keep within the covers of the Pharmacopœia nothing but what has been fully tried, fully known and fully described in detail." (p. 21.)

The project of a quinquennial Convention for Revision is believed to be a judicious one, and called for by the scientific activity of the age. A revision more frequent than twice in a decade, we do not think likely to be of advantage to either profession. We do not agree, therefore, with the suggestion that there is good reason "for supposing that a fasciculus might with advantage be issued annually or biennially, thus keeping the work up to the level of current literature and knowledge." (p. 5.) Nor are we inclined to believe that even "in the long periods of ten years many valuable articles are lost with the worthless mass of trash, not so much by the prejudice excited by the company in which they are found, as from a failure to recognize them and classify them

by proper names and description, so that they may be identified and individualized for more accurate observation and research." (p. 5.)

A Pharmacopœia, in order to maintain its dignity as a standard, should always have a character of stability. It should be as conservative as is consistent with its authority and its usefulness; adopting nothing which has not earned the well-settled approval of deliberate experience. "The long periods of ten years doubtless allow the sensational novelties of the Materia Medica to have their day, and die out without disturbing the national standard with their unsound claims and unsettled superficial testimony." (p. 5.) On the other hand, it is true that the longer the intervals of undisturbed repose, the greater the amount of detail work involved with each re-adjustment. "A more frequent review of the ground would so divide this labor and time as to give to the professions of medicine and pharmacy the results more frequently and with much less delay. And then reaching the professions more frequently and in smaller quantity, such results would be more generally examined and appreciated." (p. 5.) The meetings of the Convention should accordingly take place every five years.

The great labor hitherto thrown upon the executive committee of final revision might be very considerably lightened if the medical and pharmacal organizations throughout the country would give the Pharmacopœia a more general study, and subject it to a more intelligent criticism. It is certain that in this respect the pharmacists have shown a much more active interest than the physicians. On turning to page viii of the last edition of the Pharmacopœia, ("proceedings of the convention" of 1870), it is seen that when the delegates "were called on for such contributions as had been prepared in furtherance of the revision,"—*six* such reports or contributions were presented; two from medical bodies, to wit: the Philadelphia College of Physicians and the Missouri Medical College; and four from Colleges of Pharmacy, to wit: those of Philadelphia, Chicago, New York and Maryland. That is to say, while the medical representation in the convention was double that of the pharmacists, the latter did *at least* double the work attempted by the medicists!

Of the bodies represented in the American Medical Association, it appears that *not one* felt sufficient interest in the result to offer a suggestion or report! Comparing the rival Associations and their respective "proceedings," the contrast is equally striking. The American Phar-

maceutical Association not only has a standing Committee[1] which presents an annual Report of a very elaborate character on the "Progress of Pharmacy,"—not only has another standing Committee, annually presenting for volunteer essays, a large series of scientific "queries"—a considerable proportion of which have direct reference to details of the Pharmacopœia, but it has especially a permanent "Committee on the Pharmacopœia" which, appointed in 1863, "on motion of Dr. Squibb,"[2] and then consisting of three, was in 1874 increased to fifteen. As an offset to this, what work of a similar kind has the American Medical Association to show in its "proceedings" by which to illustrate its intelligent interest in the improvement of the Pharmacopœia, its zealous preparation for its revision, and its pre-eminent fitness to take the exclusive charge of that important work?

If the constituent bodies represented in the Convention would undertake not only to offer vague and general suggestions, but to carefully work out and present the finished details of proposed changes, they would furnish valuable contributions to the improvement and advancement of the professional Standard; would give to widely separated districts of our country their just influence and impress on the range of the work, and would materially facilitate the laborious and somewhat thankless task entrusted to the committee of final revision.

It is earnestly to be hoped that at the approaching Convention of 1880, the medical societies especially will be aroused from their previous apathy, by Dr. Squibb's energetic agitation, and redeem themselves from his reproach, "that in this organization the medical profession of eight to twelve States only was represented." (p. 6.)

II. With regard to the *plan* of the Pharmacopœia, the leading objection urged by Dr. Squibb appears to be that the existing work is a "mere skeleton"—a simple dictionary of the materia medica. "As a summary of what has been said, it may be suggested that any amendment of the present plan which does not embrace a dispensatory or its equivalent in the Pharmacopœia itself, will be no improvement upon the past." (p. 13.) "I would propose to make a Pharmacopœia which should need no dispensatory; one which, for the scientific information

[1] Since 1873, this Committee has had the form of a Special Reporter, and his valuable Report on the "Progress of Pharmacy" occupied in 1874, 279 pages; in 1875, 461 pages, and in 1876, 368 pages of the published annual of "Proceedings."

[2] Proceedings Am. Pharm. Assoc.: 1863. vol. xi., p. 42.

required, would refer to the proper works where it may be found, whether it be the botanical description or the therapeutical uses, and there is no lack of books on either subject. Now let us refer to this use of the Pharmacopœia, not simply as a dictionary, but as a book which shall describe familiar drugs, or a drug as it is met with in the market, with the processes necessary for its preparation." (p. 20.) "The description, as well as the language, should be as plain as possible, and as full. Let us have a standard for the working processes as well as for the ingredients and quantities of all the established preparations." (pp. 20, 21.) Probably many would quite as strenuously insist on a full botanical description of the materia medica, or even on a brief therapeutic reference.

While there is nothing in the etymology of the word "Pharmacopœia" which would forbid such an extension of its range, it must not be forgotten that the significance of words is determined solely by established *usage*. And universal usage has limited the application of this word to a standard dictionary of the materia medica. The purpose of such a work is in no sense to furnish a manual of instruction regarding the materials employed in medicine, by the best practice of a given country; but solely to establish a desirable *uniformity* of standard in the prescription and dispensation of remedies; and as such, it is addressed to experts in the two great professions of medicine and pharmacy.

When, therefore, our critic insists that "a Pharmacopœia for the present and future should not only embrace the established materia medica, but practically the whole materia medica; it should not only be a standard of quality, composition and strength of the old, but also a standard of *knowledge* for that which is new in advancing the art of medicine;" and that it "should no longer be of the character of a catalogue, dictionary and formulary; it should aim at a clear and complete separation and identification of that grade or quality of each substance which only is to be used in medicine," (p. 43.) he is really contending that the "Pharmacopœia," properly so-called, should be abandoned, and superseded by a Pharmacology or a Dispensatory. This is undoubtedly a proper subject for inquiry and suggested improvement. But its discussion should be approached directly and legitimately.

When it is stated that "our last revision was unsuccessful . . . *because* it is so constructed as to require a Dispensatory," (p. 19.) the

inconsiderate reader is led to believe that here is a new and hapless condition of affairs—deplorable for the profession and discreditable to the revisers. In what way the Pharmacopœia of 1870 has "lost ground," or how the conclusion itself has been reached, is not revealed; and in what way either the sale of the work or its authority would have been increased by the prompt publication of an independent Dispensatory, is as little apparent.

When the reformatory critic further declares that, "In the past it seems pretty certain that . . . . . had there been no dispensatory, a pharmacopœia upon the present plan would have been a failure," (p. 20.) he either ignores the history of all pharmacopœias in all countries, or he pronounces them all to have been "failures!" In no case has any commentary upon the materia medica been issued by the authority that has produced the pharmacopœia. Such commentaries (when they have existed) have been the work of volunteer authorship and private enterprise. A noteworthy fact in this connection is, that in the recent revision of the German Pharmacopœia, it was decided after full consideration of the subject, to retain for the work the purely titular and "skeleton" form of a dictionary, in conformity with established precedent.

Having thus effectually dissipated the fallacy as to "the *true* reason why our last revision was so unsuccessful," according to the estimate of Dr. Squibb, and "why we are *now* left to desire a change, (*if we do desire one!*" p. 19.) the field is cleared for an impartial and independent consideration of the policy of extending the scope of the Pharmacopœia; and it is now admissible to say, that if in the judgment of the Convention it is desirable to give the work a more doctrinal and popular form, no serious objection is perceived to such an enlargement of its plan and purpose. If this would be admittedly an entirely new departure, it must not be forgotten that in all professions, the people of the United States are quite as much given to *making* precedents, as to following them.

Practically there is no incongruity in a work of composite order—having in its leading paragraphs (and in distinctive type) the dogmatic character of an authoritative standard of uniformity for the materia medica, properly belonging to a Pharmacopœia; and in successive paragraphs or annotations, (in subordinate type) the didactic character of a cyclopedia of the characteristics, qualities, tests, solvents, sources,

uses, actions and doses (average, maxima and dangerous) of the materia medica, constituting it a comprehensive manual of Pharmacology. That such a work would be much more generally useful both to "Medicine" and to Pharmacy, than a mere Pharmacopœia, cannot of course admit of doubt.

Not only is it desired, however, to "embrace a dispensatory or its equivalent in the Pharmacopœia itself," without which "any amendment of the present plan . . . . will be no improvement on the past," (p. 13.) but it is proposed that the same authority which controls and revises this work, should also supply a bulletin of "knowledge for that which is new in advancing the art of medicine." To attain this end, it is held that the council should be required "to issue a fasciculus or small inexpensive volume in addition each year, giving the best attainable information in regard to new remedies and their uses, and the important elements of progress in the materia medica and pharmacy up to the time of the annual publications. . . . . Thus each fasciculus would become a useful ephemeris for its day, and these ephemerides would serve not only to keep the profession of medicine and pharmacy informed in regard to the novelties as they might occur, but assist in discriminating between the good and the bad, saving both professions from some of the influences of fashion, frivolity and mercantile speculation in medicine." (p. 14.) "The book should be simply regarded as an organized means of presenting to the professions of medicine and pharmacy a periodical summary of important and useful information upon which more accurate knowledge may accumulate in a more methodical manner in the future than in the past." (p. 45.)

Work of this kind we believe to be so entirely foreign to the legitimate province of either a Pharmacopœia or a Dispensatory, that we cannot regard the proposal with favor. When it is considered how much room for controversy exists with every novelty in medicine, the difference of opinion animated too frequently with the spirit of personal interest and "mercantile bias," it is certainly safer to leave such discussions where they properly belong, and where they can best be managed, with the able conductors of "New Remedies" and of the varied periodical literature devoted to the interests of medicine and pharmacy. As correctly stated in the Preface to the last edition of the Pharmacopœia, "Such a work must necessarily follow in the wake of advancing knowledge; it is no part of its mission to lead in the

paths of discovery; it should gather up and hoard for use what has been determined to be positive improvement, without pandering to fashion or to doubtful novelties in pharmaceutical science."

Dr. Squibb's main plea for this innovation is the value which such an "Ephemeris" or "Fasciculus"—if ably edited, would have to the physician and the apothecary. "My impression is that such a book as that, would be really more useful both to medicine and pharmacy, than the Pharmacopœia as it is. The Pharmacopœia would still be essential and indispensable, because it is the standard; but for obtaining current information, a work such as the book I have described would be more useful to physicians and to the pharmacist than the Pharmacopœia itself. From it could be obtained information quite inappropriate to a a standard Pharmacopœia." (p. 21.)

There appears to be here some confusion of idea. The "utility" of a Pharmacopœia is remote and consequential: the ultimate utility to the professions of a common and uniform standard of reference. The "utility" of practical manuals of medicine and pharmacy—recent and thorough, is immediate and absolute: the utility to individuals of a trustworthy source of progressive information and instruction. The two are entirely incommensurable. We might as well attempt to compare the relative values of a lexicon and a grammar.

The unquestionable utility, then, of such an annual *résumé* of the Progress of Pharmacy, constitutes no reason for associating this work with the Revisers of the Pharmacopœia. Rather should such a contribution furnish the extraneous material, supplied by diligent and unconnected investigators, upon which the revising tribunal is called in proper time, to sit in independent and impartial judgment. Such an annual history and epitome has for years past furnished a very considerable and valuable portion of the published "Proceedings" of the American Pharmaceutical Association. And in this body and in its congener, the American Medical Association, (its elder brother) can such "Fasciculi" be best, be most skilfully, be most appropriately gathered and bound into a sheaf. It is believed that such a work, published at cost, under the joint auspices of the two Associations, and under the inspiration of a generous emulation, would supply to the medicinal professions a Guide, fully realizing Dr. Squibb's ideal of an annual Ephemeris of Pharmacology.

The project above animadverted upon appears to be partly based

on the assumption that "the Pharmacopœia [as a work upon the materia medica] is the source of, or gives origin to pharmacy. There could be no pharmacy without a pharmacopœia, no more than there could be a practice of law without statutes or enactments . . . . Pharmacy presupposes a Pharmacopœia, but it does not make it." (p. 28.) This is evidently erroneous. No nation or people ever yet had a "statute" without having had a large body of antecedent custom and unwritten law long established. And a Pharmacopœia is no more possible without a large amount of pre-existing well-established pharmacy than is a Lexicon, without a long pre-existing spoken and written language. "A Pharmacopœia *presupposes* a Pharmacy," and is entirely moulded by it.

The only remaining recommendation of practical importance in the pamphlet under review, is that "the secondary list should be abandoned, and the separation into materia medica and preparations should give way to a single alphabetical order embracing the whole contents." (p. 57.) This technical modification of the existing plan has been repeatedly urged by various writers. It is one which we believe commends itself to a large majority of either profession. Certainly either a Pharmacopœia or a Dispensatory would be much more convenient for reference were it comprised within the alphabet of a *single* dictionary. The arrangement of all the substances in the Pharmacopœia in a single or continuous alphabetical order is also recommended by the committee on this subject appointed by the American Pharmaceutical Association.

The distinctions which have so long maintained a separation between the "Materia Medica" proper and its "Preparations" are fluctuating and unimportant. To one who had not given special attention to the refined reasonings of the Revisers, it might appear very arbitrary to class benzoic, gallic, or tannic acid under the one head, and citric, oxalic, or tartaric acid under the other; and he might wonder why bromide of potassium, iodide of ammonium, oxide of zinc, phosphate of sodium, sulphate of quinia, strychnia and veratria were accounted merely pharmaceutical preparations, while acetate of lead, carbonate of ammonium, hypophosphite of calcium, nitrate of sodium, sulphate of copper and valerianate of zinc were consigned to the *materia* of the manufacturing chemist. Certainly no adequate advantage appears for requiring in a large number of cases a double search from one who desires to consult the Pharmacopœia.

In this connection (as being also a matter of technical detail) it is recommended that "cross references" should be made. Thus, under the head "Opium," for example, should be given a tabular list of every preparation derived from this substance or into which it enters, as Aceta, Confectiones, Emplastra, Extracta, Pilulæ, Pulveres, Suppositoria, Tincturæ, Trochisci, Vina, including derivative alkaloids and their several preparations. Each of these should be specifically stated, with a refe rence to the page on which it is described. This synthetic view would add considerably to the practical convenience of consultation.

Dr. Squibb thinks that "such a revision would decimate the present lists. Not that they are entirely useless, but that they are not appropriate articles to be retained in a pharmacopœia when they take up room which might be given with greater advantage to the details of primary articles." (p 21.) The necessity for such a restriction, or its advantage, is not very apparent. The question of "room" is one which needs hardly be considered. The first need or desideratum in such a standard is fulness and completeness: and we strongly endorse the seventh Resolution of the last Convention, "that, in the revision of the officinal list and formulas, the wants of the medical profession in all parts of the United States should be considered in reference to local peculiarities in climate and population, and that for these reasons the scope of the work should be extended rather than abridged."

The sixth Resolution of the last Convention ordered "that measures of capacity be abandoned in the Pharmacopœia, and that the quantities in all formulas be expressed both in weights and in parts by weight." For this sweeping and radical change in the construction of formulas, no foundation had been laid by any reports or proffered illustrations from those interested in the new movement; and no elaboration whatever attempted by its authors and promoters, to guide the committee in its execution of the mandate. From the failure of the revising committee to carry out this instruction (the reasons for which are briefly stated in the preface to the Pharmacopœia, p. xiv.) advantage is sought to be taken to impugn the efficiency of the Convention! "In the last revision the Convention failed to control its committee in the work, or rather the committee did not carry out the direction of the Convention, and the Convention has no redress; for, by its own organic provisions, it can only be called once in ten years, and then by the chairman of its own committee which declined to carry out its orders." (p. 12.)

While the present writer was in favor of executing the order, he never disguised from himself or from others the difficulties and confusion inevitably attendant on a premature disturbance and innovation. Taking the case of "Fluid Extracts" for example, of which there are now forty-six made officinal, we find that, excepting the single "Compound Fluid Extract of Sarsaparilla," (U. S. P., p. 167,) every one of these forty-six preparations requires 16 troyounces of the vegetable powder to be made into 16 fluidounces of the finished fluid extract. That is to say, each fluidounce of the preparation contains, by the existing formula, the extractive matter of a troyounce of the constituent material. How or in what proportion these valuable and elegant preparations are to be made by *weight* is not so obvious, for of course they cannot be made ounce for ounce by weight.

There seems to be little room for doubt that the abortive attempt of the last Convention to introduce the gravimetric system will prove but a temporary delay, and that it will serve more effectually to secure the result in the Convention of 1880. The principal advantage of the method is its greater accuracy than the prevailing volumetric practice.

It is to be hoped that those so ready both to improve and to censure, will exercise their inventive ingenuity on practicable details as well as on "glittering generalities." And while it is much to be desired that the next Committee of Revision shall be composed of entirely new material, it is also earnestly hoped that while there is yet time, the formulas will be so well considered and so intelligently worked out by the constituent bodies and their delegates before the meeting of the Convention, that this enormous additional labor and responsibility shall not be thrown entirely upon the new Committee.

Another proposed reform (partly embraced in the conclusion of the sixth Resolution above cited), which has attracted some attention and discussion, is the further step of abolishing specific weights entirely and expressing all formulas in gravimetric "parts." The ostensible advantage of this system of mere *ratios* (or, as it may be called, the *algebraic system*) is that the same formula could be executed in any quantity and by any system of weights, and consequently that it would form an important advance in the direction of an international Pharmacopœia. On the other hand, the prospect of an international Pharmacopœia with Great Britain (to whom we are most nearly related) appears to be too remote to justify much sacrifice on our part to

encourage hope deferred. There are other international uniformities, as of weights and of moneys, which are certainly of much greater importance, and which are likely to take precedence in time.

This topic was made the subject of one of its "Queries" by the American Pharmaceutical Association in 1875, and received from Prof. Sharples an intelligent examination in a paper presented at the meeting of 1876.[1] The "Query" was renewed at the same session in the following form: "What advantages would result from the substitution of parts by weight for absolute quantities in the revision of the Pharmacopœia? and if any disadvantages, other than those incident to change, what are they?"[2] This question will receive a still fuller discussion at the next meeting of the Association in September next (of the present year, 1877.)

Theoretically, nothing appears simpler than the translation of concrete weights into abstract "parts"; or these latter being given, the converse translation of them into any given order of weights. But the practical application is by no means so easy as the general direction. Let us take a single case for trial—at random. The Pharmacopœia opens at page 274. We will transform the formula at the bottom of the page, (that for the Aromatic Spirit of Ammonia) into weights—say grains, then these into their lowest numbers for "parts," and lastly these into convenient whole numbers by an approximation, to represent finally the proportions "in parts by weight."

SPIRITUS AMMONIÆ AROMATICUS. (*U. S. P.*)

1		2 Specific Gravity.	3 By Weight.	4 In lowest terms.	5 Approximately.
Take of					
Carbonate of Ammonium,	℥i	. . .	480 grs.	37	36
Water of Ammonia,	f℥iii	·96	1312 "	101	100
Oil of Lemon,	f℥iiss	·847	120 "	9·23	10
Oil of Nutmeg,	♏ xl	·95	36 "	2·77	3
Oil of Lavender,	♏ xv	·875	13 "	1	1
Alcohol,	Oiss	·835	9131 "	702	700
Water,		1·000	(1879 ")	(144)	(150)
q. s. to make	Oii		12971 grs.	997	1000

[1] Proceedings American Pharmaceutical Association, 1876, vol. xxiv, pp. 453–56.
[2] Proceedings American Pharmaceutical Association, 1876, vol. xxiv, p. 15.

The above estimates of grains in the third column assume the specific gravities given in the second column. Having got the formula into this form, what shall we do with it? Evidently we must simplify the numbers as in the fourth column; but as we have fractions here, a further step is necessary to give us the nearest whole numbers as in the fifth and last column. It is true that this last result is only an approximation to the original formula; but the difference in this case is not particularly important.

Supposing, then, the last column (or any other approximation that may be preferred) to represent the improved formula "in *parts* by weight." The merit of these "parts" is that they may equally well represent any units of weight. Let us call them grammes, then the whole quantity will be 1000 grammes, or 1 kilo-gramme; equal to $32\frac{1}{8}$ troyounces, or ℔ii ℥viii Troy, (2℔s. 3oz. *av.*) nearly the quantity of the original formula. But the apothecary would doubtless prefer to just fill his quart bottle, as he has been accustomed to do by the old formula. Now, it is quite evident that to convert this product of the new formula, 1 kilo gramme, into 1 quart will really involve a troublesome calculation; and it will again require an approximation. If the new "parts by weight" be counted as grains, the problem will not be much simplified. Wearied by the constant labor of calculation or reduction from abstract "parts," on every occasion of employing this improved and "universal formula," the druggist will doubtless note down in the margin of his Pharmacopœia ("once for all") the actual weights or quantities which he has found it convenient to adopt. Would it not be better, simpler and less hazardous of error if, in addition to the notation of "parts by weight," the actual specific weight of each ingredient were to be officinally stated? It is quite evident that this whole question concerns the pharmacist much more vitally than it can the physician—an added reason why the Pharmacopœia should not (and cannot properly) be placed under the exclusive control and "fully-recognized leadership of the American Medical Association."

We trust that this single illustration (a comparatively simple one) of the practical labor and difficulty investing the new departure, will in the minds of the thoughtful, (not too pre-occupied with a theoretic enthusiasm) serve partially to extenuate the delinquency of the executive Committee in having, in the condemnatory language of the prosecution, "*refused* [!] to carry out the instructions of the Convention." (p.

5.) Upon the reflective there may dawn some gleam of sympathy with the dismay naturally felt by the Committee on being confronted with the formidable task which had somewhat inconsiderately been imposed upon it. The able, conscientious, and esteemed President of the Convention, and chairman of the Revision Committee, is no longer with us to justify the course he felt obliged to recommend and to urge under these harrassing conditions; but the more sacred becomes the duty of those who knew the man, to shield his memory from any suggestion of wilfulness, indifference, or want of fidelity to the high trust committed to his charge.

The professional employment of medicines involves three successive stages or processes, each by a different agent. First, the *prescription* of the remedy by the physician; second, the *dispensation* of the compounded materials by the pharmacist; and third, the *administration* of the prepared medicine by the attendant nurse, or occasionally by the patient. In the first two of these operations there is no serious difficulty in the exclusive use of gravimetric apportionment; but, in the final step, the difficulty of administering liquid doses by *weight*, appears to be insuperable. If, then, the patient must continue to take his prescribed mixture by a convenient *measure*, (as the teaspoon or the wineglass,) it seems necessary that the quantity compounded by the apothecary, in order to give a determinate number of doses, should also be estimated in multiples of such measure; or, in other words, by a fluid *volume*.

In view of the probable adoption of a purely gravimetric system by the next decennial Convention, would it not be eminently desirable that a suitable popular measure of accurate size should be adopted by the Convention, for the administration of liquids, to supersede the common variable teaspoon? If weights are preferable to measures in the preparation of the mixture, by reason of their finer accuracy, and if such more accurate mixture must continue to be administered by volume, is there not a corresponding need that a greater uniformity and accuracy should be attempted in the final stage of the actual exhibition of the dose?

We strongly urge the recommendation therefore—in the interests of the physician and of the pharmacist, as in the best interest of the sick, that a standard spoon of accurately determined capacity should be authoritatively adopted by the Convention of 1880, and universally

assumed and recommended for use by the professions. Should the metric system of weights be adopted, such standard officinal spoon might very conveniently have the exact capacity of four "fluigrams" of distilled water; a volume expressed by the French metric system, as four *millilitres*. The capacity of such a spoon (a "metrispoon") would be in our present measures 64·9 minims; the ordinary teaspoon being supposed to hold 60 minims or one fluid-drachm.[1]

Omitting several minor points in consequence of the unreasonable length already reached by this communication, this portion of the subject may be concluded with a reference to the suggestions already made by the committee of fifteen appointed by the American Pharmaceutical Association for the purpose of considering and reporting upon any improvements which may be thought advisable in the next revision of the Pharmacopœia. This committee has recommended: "1st, That all measures of capacity be abandoned; 2d, That all substances be weighed, and that the quantities be given in parts; 3d, That all substances in the U. S. Pharmacopœia be arranged alphabetically; 4th, That the descriptions of crude drugs be made more exact and complete; 5th, That the formulas for the manufacture of chemicals, which are recognized as produced entirely by manufacturing chemists, be omitted, (with the exception of such chemicals as produce different results when made by different processes), and that a description of the chemical be substituted with such tests as shall be conclusive as to its identity and purity; 6th, That it is desirable that there should be a larger number of tables for reference introduced into the U. S. Pharmacopœia.

Remembering that the Association has never had even a representation in the decennial Convention, such enlightened activity and disinterested zeal in attempting to awaken inquiry, to stimulate suggestion, and to promote discussion in regard to all the details of the approaching revision, cannot be too warmly applauded. Where shall we look throughout our land to discover traces of any similar interest, or any similiar procedure in any organized body of either profession? If this spontaneous heartiness of co-operation in a great public work has in any quarter of the medical domain occasioned among any individuals a touch or suspicion of jealousy, we believe that a very brief experiment in devoting attention to the defects or the requirements of the

[1] The suggestion of a standard "metrispoon" was published by the writer in the *Medical and Surgical Reporter* for February, 1877, vol. xxxvi, pp. 171, 172.

medical standard, with a view to offering solid projects of improvement, will very speedily dissipate the last traces of any such sentiment.

III. The method of *publication* is a subject upon which there has existed considerable difference of opinion. Heretofore the Pharmacopœia has been "published" by a well-known and responsible publishing firm in the city where the committee has held its sessions, and where the work of revision has been done. This publishing house has not, however, at any time owned the "copyright;" this having been held by the Committee of Revision and Publication, in trust, through its chairman. Dr. Squibb in his earlier reflections on the subject expressed the opinion, that "in order to cheapen the book as far as possible to the medical and pharmaceutical public, the copyright should be placed at a price that would just meet all reasonable expenses." (p. 9.) Practically, this is precisely what has always been done, excepting that the copyright was never actually sold. The only pecuniary income from the publication ever received by the owners of the copyright, has been the pittance of some two hundred dollars or thereabouts, required by the committee for actual outlays. Beyond these slight necessary expenses, the committee has permitted no remunerations; but has studiously labored to so limit the profits of the work, that it should be furnished to the public at the lowest remunerative price.

It is complained, however, that "what the copyright has yielded hitherto, or what it was worth, could never be known, because it was always given *arbitrarily* to one publishing house, which house declined to give any information upon this point." (p. 9.) At the time referred to in this complaint Dr. Squibb was himself a member of the revising committee, a majority of which (contrary to his wishes), instead of inviting bids from New York and Boston, or permitting a competitive scramble for the work, as a valuable prize, decided (wisely, as we believe) on having the printing done under its immediate supervision, with the constant opportunities of very frequent *revises* of the "proofs." And it was also insisted on that a careful estimate should be made for minute criticism, whereby the book should be put upon the market at the cost of production. The result was that the revision of 1860, published in 1863, when gold was rising to its highest tide, and prices were correspondingly inflated, was, by this "arbitrary" conduct of the committee, retailed at the price of *one dollar* in currency!

It is safe to say that no book of corresponding size and style was produced at this time at less than *double* this price, even though it were a work of much more popular character and much larger circulation than a *Pharmacopœia!* Considering that this weakling of the press ("a mere skeleton") could by no possibility be classed with "light literature," we are biased enough to maintain that this publication was a *marvel* of cheapness. It is not believed that any respectable publisher could have offered the book at a lower rate (unless with the hope of securing a future publication of the work in better times). Whether the majority of the committee, in thus "giving it arbitrarily to a publishing house," consulted the true interests of the professions they were honestly laboring to serve is for the unprejudiced of those professions to decide. The probable influence of this course on the circulation and sale of the work, may however, be *obliquely* gathered from the unintentional testimony of our opponent, whose severest impeachment of the past utility of the naked Pharmacopœia is, that "until within the last twenty years, probably, the Pharmacopœia was but little known!" (p. 19.)

The plan now proposed by Dr. Squibb contemplates (as has been seen) the sale of the copyright to the highest bidder, in order to yield as large a remuneration as possible to those entrusted with the revision. He says: "Should the copyright be offered to a properly controlled competition, it doubtless could be made to pay liberally all the expenses necessary to having the work well done." (p. 9.) And, to prevent the danger of distributing the proceeds of the sale among too many hands, the caution is provided, that "the income from their work, if it be well done, will within a moderate time pay a few men for the time and labor they give, but would not pay a large number of men." (p. 47.)

Dissenting entirely from these views, we are yet strongly of the opinion that the time has now arrived for a considerable change in the manner of producing the Pharmacopœia. Not as a momentary or controversial impression, but as a deliberate and long-cherished conviction, we would advocate, very decidedly: 1st, the permanent retention of the copyright of the Pharmacopœia by the Convention itself, as an incorporated institution; 2ndly, the publication of the Pharmacopœia by the Convention itself, through a special committee for that purpose; 3rdly, the appointment of a treasurer by the Convention to take charge of the proceeds from the Pharmacopœia as a permanent

fund, from which the expenses of the Convention should be paid; and 4thly, the payment from such fund of all *necessary* expenses of the Committee of Revision, including the actual traveling expenses of its members.

On the first proposition but little needs be said. It can scarcely be questioned that an organization of such authority and responsibility, should have the chartered franchise enabling it to hold and to defend its property; so that in its own name and by its own act it should be legally qualified to resist either the infringements of publishers or the trespasses of aspiring associations of men willing to "relieve" it of the management of its affairs, or to "assume" the possession of its prerogatives. We believe, moreover, that it is most consistent with the dignity of the Convention that the legal possession of the copyright of its own peculiar production, should not be delegated even to its own Committee, which has heretofore so faithfully and so honorably discharged its delicate trust. The President of the Convention (and his successors or official representatives) should by the organic constitution of the body, have the duty of calling the Convention every five years, in a specified manner and at a specified time and place; and the further right to convene the body at any intermediate time when in his judgment circumstances should render it expedient.

On the second proposition it may be remarked that nothing can be more unseemly than struggles of members—the partisans of rival cities, eager to secure the supposed advantages of a local publication. Should it be decided, for instance, that the sessions of the next Committee of Revision shall be held in Boston, what could be more derogatory than a contest whether the printing and publishing of the book should be sent to a Philadelphia house, willing to *underbid* a responsible publisher on the ground, in whom the committee had entire confidence? That such local jealousies have been entertained and openly avowed is only too notorious. In the discussion following Dr. Squibb's presentation of his enterprise at the meeting of the American Pharmaceutical Association in September, 1876, Mr. Colcord, of Boston, remarked, "The United States Pharmacopœia has always been published in one city, and by one set of men; and it got into a rut and became a Philadelphia institution. Not but what that made a *better* Pharmacopœia than it would have been if it had gone to Chicago or Boston, but it was a local institution."[1] As the Acts of Congress also "have always

[1] Proceedings Am. Pharm. Assoc.: 1876. vol. xxiv., p. 637.

been published in one city," we presume by Mr. Colcord's logic they also are to be classed as "a local institution!"

Unfortunately, the city of "Fraternal Affection" has always been the acknowledged Medical Metropolis of the nation. *Unfortunately*, since here (as is sometimes the case) the reputation has involved a corresponding labor and responsibility! Whenever the Convention has desired to submit its chosen business to a selected number of zealous, hard-working men in the field of abstract medicine and pharmacy, instinctively a considerable proportion of such material has been culled from Philadelphians. Are other sections of our wide-spread Republic ambitious of the labor? Surely they have only to apply their own shoulders to the wheel! If distant portions of our common country have the misfortune (real or supposed) of a deficient representation, who is responsible for this melancholy condition of affairs? Who is chargeable with *suffering* the Pharmacopœia to become "a local institution?"

At the last meeting of the Convention, (in 1870) the number of contributions in furtherance of the Revision presented by the sixty delegates representing the pharmacopœial science of the nation (shall we add, its zeal and industry?) was—six![1] Of these six contributions *two*, beyond all reach or question of comparison, were most elaborate and valuable for the purposes of a revision. Of these two well-studied programmes, one was a Review presented by the "*Philadelphia* College of Physicians," the other was a Review presented by the "*Philadelphia* College of Pharmacy!" Do honorable gentlemen *complain* that they themselves have been indifferent or negligent? Is it the peculiar offence of Philadelphians that they have *not* been equally indifferent or negligent? Is it a proper subject of self-laudation that not a fragment of a report was submitted from any New England State? Or is it held to be a worthy ground for envious bickerings, that other cities and States have voluntarily suffered by far the largest portion of the *preliminary* labor of revision to be actually performed "in a single city"?

Where the sessions of the Committee should be held was simply a question of convenience and economy. Wherever in the judgment of the next Convention it may be deemed expedient to fix the sessions of the Executive Committee, most sincerely do we hope that Philadelphia will *not* be selected. If the mere change of *venue* should be successful in awakening a larger local interest and activity in the improvement

[1] Pharmacopœia, U. S., 1870, p. viii.

of the Pharmacopœia, a great public good will have been effected, and the profession will have true cause for gratulation.

The zeal manifested to have the work of revision specifically localized, so disproportioned to the zeal displayed in actual performance of the work, has not apparently an adequate impelling motive. Speaking from experience, we believe that one who has twice served upon the Executive Committee (as a working, not as an ornamental member), will be very glad to wash his hands thereafter from further personal anxiety, fatigue, and responsibility in the conduct of the revision. The honor or credit attending its duties is of an apocryphal character, the thanks, if any, stand at an infinitesimal figure, the criticisms upon the result not always friendly in spirit, the occupation of precious time tedious and exacting, the expenditure of real and prolonged labor very serious, and finally the compensation for all this—*nothing!* If those who appear to be so desirous of obtaining the work for New York or Boston have in view the dim perspective of a more enlarged worldly-wisdom, it is perhaps well that such anticipations should be definitely settled. To remove all occasion, either for temptation or suspicion of partiality or "mercantile bias," no course appears so direct and decisive as the exclusion of the copyright from any local or personal disposition. The practical business of publication can well be performed by a judiciously selected Committee, as the Proceedings, Transactions and Journals of learned Societies are usually conducted.

On the third proposition it is only necessary to say that a treasury necessarily follows from the possession of an income and a fund. By simply retaining the possession of its own literary property under the editorship of its Revising Committee, and the management of its Publishing Comittee, and by distributing its published work among the principal medical booksellers of the United States on the usual trade commissions, the Convention would doubtless be in the possession of a modest income quite sufficient for all its economic needs. On the other hand, the public spirit of so large, so varied and so respectable a body, would doutless be a sufficient guard against any tendency to enhance unduly the profits of the enterprise, or to lower it to the character of a mercantile speculation. In this connection it is suggested that as a just and equitable portion of the income from the work, a moderate copyright royalty or license fee should be charged for any re-production of it in a commentary or dispensatory.

On the fourth proposition there is scarcely need for further comment. The propriety of the Convention, making provision for the *necessary* expenses of its Revising Committee, will be questioned by no one. A provision for the actual traveling expenses of the members of the committee incurred in the discharge of their grave and onerous duties, falls really within the scope of the preceding statement. But on this provision we wish strongly to insist, as a step absolutely necessary, to secure attendance from any distance; and necessary, therefore, to maintain in the committee any just and proper representation of our wide-spread and diversified territory.

With these responses, criticisms, and suggestions, in relation to the future plan and management of the U. S. Pharmacopœia, we close by a quotation, and full endorsement of Dr. Squibbs' considerate words: "There is probably no subject where hasty, immature action is more to be deprecated, or where a wise deliberation is more necessary to the welfare of the single *inseparable* interest which embraces the arts of medicine and pharmacy." (p. 9.) Having felt called upon to review with some freedom the programme of improvement so elaborately and industriously set forth by Dr. Squibb, the writer would be doing justice neither to his own feelings and convictions, nor to the merits and intentions of the talented author of that programme, did he neglect to express his high personal regard and professional respect for Dr. Squibb, and his unwavering confidence in the sincere, exalted, and disinterested purpose entertained, to advance the best interests of both professions, and to elevate the character of our National standard—the UNITED STATES PHARMACOPŒIA.

INDEXING OF PERIODICALS.

The articles of Messrs. Moore and Wilder on the Use of Books and the Indexing of Periodicals are doubtless of sufficient interest to call for further practical suggestions. Mr. Wilder's card system is a good one, but I fancy the following plan, which I have used successfully for several years, will be found more convenient. I have a small set of pigeon-holes (about 34½ in. x 13 in.), made to fit any desk. These pigeon-holes are 4½ x 3 inches in size, and are labelled from A to Z. I take common foolscap paper, double each sheet twice upon itself, cut it into eight slips, and turn up a margin of half an inch on the left side—the dotted line marks the edge of this fold. Each slip is about

ACONITE.—Very useful in neuralgia, in combination with Pot: Brom:—

Vide Med: Gaz: p. 26, vol. v.

Aconite root should be tasted to test its purity. It is *inert* if not bitter.—Squibb, Pamph: p. 21.

8 in. x 3 in. in size, and is large enough for most purposes, particularly as it is only *important* facts that one cares to preserve. With a sufficient stock of these slips on hand I am prepared for work.

In reading medical journals or other scientific periodicals, I make it a rule to mark, with a cross or other sign, on the margin of the page any article or paragraph of special interest. I then go carefully over the periodical a second time, and note down on one of my paper slips any fact or statement that I wish to preserve, heading it with its appropriate catch-word in a larger hand, and referring to my authority, volume and page. This slip I place in its proper pigeon-hole, and thus I am provided with an alphabetical register of medical notes, which I can paste together by their folded margins or arrange and put into book form at any time.

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TINCTURE of KINO which will not GELATINIZE.

By Peter P. Fox, Ph.G.

The difficulty of preventing the tincture of kino, U. S. P., from gelatinizing, has induced me amongst some others of our profession, to experiment with the use of pure glycerin in its preparation; and after having tried various proportions I have at last obtained a permanent preparation, and I trust done something towards solving the query, "How can tinctura kino, U. S. P., be made permanent?" The following is my formula:

Kino in fine powder, . . . 360 grs.
Alcohol, Glycerin, Water, each a sufficient quantity.

Mix four measures of alcohol with one of water and one of glycerin, then proceed as directed in the U. S. P., using sufficient of the above menstruum to make half a pint of tincture.

Prof. Remington has had a sample of this tincture since early last fall, and at this time it shows not the least sign of becoming thick.

NOTE ON RECOVERING ALCOHOL.

By J. U. Lloyd.

If the directions for preparing official fluid extracts are carefully followed, trouble is in some instances experienced in the very important after-operation of recovering the alcohol which remains within the residue. The usual process, and the most satisfactory one in my opinion, applicable alike to small or large amounts, is to continue the percolation with water after the extract is prepared, and recover the alcohol from the watery runnings by distillation; and in this latter percolation I find among pharmacists much trouble occasionally is experienced. If the materials are powdered and well packed, as directed by the "Pharmacopœia," it is often absolutely impossible to percolate with water; the ligneous portion of the mass softens and swells; the gum, mucilage and extractive matters dissolve, altogether forming a glutinous paste or mush, through which water refuses to pass. If the materials are not properly powdered and packed, the extraction of the medicinal principles of the drug is found to be difficult or impossible. Consequently the extract is likely to be deficient in strength. Less trouble is afterward experienced with the water; but mucilaginous materials, like buchu, especially such as have been exhausted with strong alcohol, cannot be easily percolated with water, even though very coarsely ground.

I find it advantageous in all cases to have the exhausted powder dumped out of the percolator and replaced loosely. I have a set of percolators of different shape expressly for residues, and require every residue to be removed from the original percolator. But this will not answer for some articles, as it seems impossible to replace them loose enough. To overcome the trouble, I have the powders of certain materials evenly mixed with sawdust as soon as they are dumped. Buchu, squills, and a few such, require about their own bulk; others, like cimicifuga and aconite, one-half part. Water will freely permeate through these mixtures. A very aggravating trouble is overcome by this simple process.

Note By The Editor.—When working with large quantities, we have found it convenient to transfer the exhausted powder to a still and inject steam under pressure. The alcohol distills over, gradually

becoming more diluted. If charged with odorous principles it may be passed through charcoal and afterwards rectified by redistillation, or it may be rectified at once with the addition of some permanganate, whereby many volatile odorous principles are destroyed.

COLLODION.

By G. H. Chas. Klie.

The "Pharmacopœia" directs to make simple collodion by taking two hundred grains of pyroxylon, and by occasional shaking to dissolve it in a mixture of twelve and a half fluidounces of stronger ether, and three and a half fluidounces of stronger alcohol. Cantharidal collodion contains in one pint fifteen fluidounces of an ethereal tincture and one ounce of a concentrated alcoholic tincture of cantharides, with one hundred grains of pyroxylon. The addition to this of one hundred and twenty grains of Canada turpentine and one hundred and sixty grains of castor oil is directed to insure flexibility.

With soluble pyroxylon the preparation of simple collodion offers no difficulties whatever; that of cantharidal collodion offers none, after a full strength spirituo-ethereal tincture has been secured. The success in making both preparations depends on the solubility of the pyroxylon. A variety of methods are followed in the preparation of this article, besides those which the "Pharmacopœia" gives.

One formula is: Take 10 fluidounces of sulphuric acid, sp. gr. 1·84 in a dish, add 12 fl. drachms of water and 10 fluidounces of nitric acid, sp. gr. 1·50, and raise the temperature to 140° by immersing the dish in boiling water. One ounce of clean cotton is then immersed in small portions at a time, keeping the liquid in motion until the liquid be nearly absorbed. Wash in water until perfectly neutral, and for preservation dry slowly and thoroughly. I have tried this formula, but without success.

Another is: Take of cotton one ounce; sulphuric acid five fluidounces; nitric acid five fluidounces. Mix the acids in a porcelain mortar, immerse the cotton in the mixture and stir it for three minutes with a glass rod until it is thoroughly wetted by the acids. Wash in water until the washings cease to give a precipitate with chloride of barium. Drain the product on filtering paper and dry in a water bath. A comment accompanies this formula, saying: "The officinal nitric

acid of sp. gr. 1·5 makes a pyroxylon which is not entirely soluble in ether; but nitric acid of sp. gr. 1·42 answers much better." This is from "Pereira's Materia Medica," etc.

According to the "Pharmacopœia," a half troyounce of cotton, freed from impurities, is thoroughly imbued in a mixture of three and a half troyounces of nitric acid and four troyounces of sulphuric acid of officinal strength for fifteen hours, after the temperature of the mixture has fallen to 90°. The product is then washed, first in cold water, until the washings cease to have an acid taste, and then in boiling water, then drained on filtering paper and dried by means of a water bath. If acids of the officinal strength can not be easily obtained, for the same quantity of cotton a mixture of four troyounces of nitric acid, sp. gr. 1·382 to 1·390, and of sulphuric acid, sp. gr. 1·833 ten troyounces is used, and proceeded as before. I have tried both of these formulæ and have had tolerably good success with the second when the directions were scrupulously followed.

Hager, in his commentaries to the "Pharmacopœia Germanica," gives a table of mixtures for the preparation of pyroxylon, which I give below. It shows the proportion and the sp. gr. of the acids in each mixture, and the number of hours necessary to complete the chemical change in the cotton:

Nitric Acid.		Sulphuric Acid. Spec. gr. 1·833–1·840.	
Parts.	Spec. gr.	Parts.	Hours.
11	1·460	11	5
12	1·450	12	6
12½	1·440	13	7
13	1·430	14½	8
14	1·420	16	9
15	1·410	17	10
16	1·400	18½	12
17	1·390	20	15
18	1·380	22	20

Comparing the second formula of the "Pharmacopœia" with the one that ought about to correspond with it in this table, a conspicuous difference is noticed. The former uses four parts nitric acid, sp. gr. 1·390, to ten parts sulphuric acid, sp. gr. 1·833, whereas, the latter uses seventeen parts nitric acid, sp. gr. 1·390, to twenty sulphuric acid, sp. gr. 1·833–1·840. Whether this mixture of Hager makes soluble pyroxylon I cannot say. I have used mixtures approaching it in composition, but never with success.

I have had the most success with the following old formula in making pyroxylon; in fact I have not yet had a failure with it: Mix in a mortar, of the proper size, 7¼ ounces of granulated nitrate of potassium and 6¾ fluidounces of sulphuric acid, and immediately steep in it, with the aid of the pestle, 180 grains of cotton, freed from impurities. Let stand 12 to 15 hours, wash the product thoroughly, first in cold and then in boiling water, and dry by means of a vapor-bath, or, if it is to be used immediately, displace the water by alcohol and express. There is another version of the same formula, saying: Wash, after five minutes' immersion, in the mixture as above, first in cold and then in boiling water. If the latter is done, soluble pyroxylon will not be obtained. When the washing is performed in cold water alone the product will be soluble and explosive, but if it is completed in boiling water the product will lose its solubility but retain its explosiveness. The acid used in this formula may vary between 1·833 to 1·9 without necessitating a change in the proportion.

When a mixture of acid, nitrate of potassium and cotton has stood 12 to 15 hours it will have formed into a solid cake, which it takes some time to soften sufficiently that the pyroxylon may be conveniently and thoroughly washed. This is performed first in cold and then in boiling water, the latter in this instance not affecting the solubility of the product in the least. By both of these manipulations, viz., 12 to 15 hours' or 5 minutes' immersion, soluble pyroxylon is obtained, providing no boiling water for washing is used after the latter.

To see whether the temperature of the mixture had any appreciable influence on the solubility of the product, instead of adding the cotton immediately after mixing the nitrate of potassium and sulphuric acid, the mixture was placed aside for an hour, stirring it in the meantime three or four times to prevent caking. Upon mixture, the temperature rose to 122°F., and in one hour it had fallen to 78°. The mixture now had a viscid consistence something like granulated honey, and it was found somewhat difficult to incorporate the cotton. After 24 hours the product was thoroughly washed and dried, and proved to be perfectly soluble. This proves tolerably certain that the temperature of the mixture does not exert any influence in making soluble pyroxylon by this process.

Whether the nitrate of potassium formula can be used for the manu-

facture of pyroxylon on the large scale I cannot say, not having worked on more, at any one time, than one ounce of cotton.

I have pyroxylon on hand, prepared according to this formula two-and-a-half years ago, which has not undergone the slightest change, but is as soluble now as when first made. It has been kept in the dry state in a common flint-glass ground stoppered bottle, and not protected from the light. Some other specimens, treated the same way apparently, would, in the course of a couple of months, decompose. This is a tolerably certain indication that the washing was defective. This ought to be done in a most thorough manner, first using clear water, then some alkaline solution to saturate any trace of acid, and lastly, again clear water, and then boiling water to remove the alkali. Cotton, when changed to pyroxylon, increases considerably in weight; 180 grains were found to weigh 290 grains, or 61 per cent. increase in weight.

Finally, I cannot but say that although the formulæ of the "Pharmacopœia," if strictly followed, will give good results, still, even if not very strictly followed or not very carefully manipulated, by the nitrate of potassium formula I have always obtained uniformly soluble pyroxylon.

Lowell, N. St. Louis, Mo.

LINIMENT IODIDE OF AMMONIA.

By Theodore G. Davis, Ph.G.

I was induced, from the large amount of advertising and high testimonials given to "Giles' Liniment Iodide of Ammonia," to look into its composition with a view of framing a satisfactory formula, should such prove a desirable addition to our list of liniments. It smells strongly ammoniacal, slightly camphoraceous and lavender-like; when mixed with water it becomes milky, and globules of oil may be seen floating on the surface. Iodine could not be detected by chlorine water and starch, nor was any precipitate produced when boiled with hydrate of potassium until all odor of ammonia had disappeared, acidulated and tested with acetate of lead and mercuric chloride. A quantity was evaporated, by means of a water-bath, to a small bulk, thus getting rid of the oil of lavender, alcohol, and greater part of the ammonia; water was added, and the whole thrown on a filter, thus sepa-

rating the camphor; a portion of the filtrate was neutralized with muriatic acid and tested by cupric and ferrous sulphates; it *did not* yield a precipitate. I then estimated, with nitrate of silver, the quantity of *iodine*, and found *one-tenth* grain as iodide of ammonium.

From the results of a number of experiments, the following would give a very similar preparation, containing sufficient "iodide of ammonia" to give it a name.

Take of	Iodide of Ammonium,	grs. ii
	Camphor,	
	Oil of Lavender,	āāʒi
	Water of Ammonia,	ʒiv
	Alcohol sufficient to make	Oi

Mix.

If a liniment of iodide of ammonium should prove desirable, I would suggest the following, as containing iodine in a form of combination—iodide and iodate, most favorable for absorption and the elimination of *free* iodine.

Take of	Water of Ammonia, (10 per ct.)	fʒii
	Glycerin, or	
	as I prefer, Soap Liniment,	fʒii
	Tincture of Iodine,	fʒviii
	Alcohol,	fʒiv or q. s.

Mix the soap liniment (or glycerin) with the tincture of iodine and add the alcohol and ammonia; shake and add alcahol to make one pint. When first mixed it is of a ruby red color, but in two or three days becomes colorless, affording a cleanly preparation, which may be appropriately called a liniment of "iodide of ammonia," but the correct name of which would be Linimentum ammonii iodidi et iodatis.

Bridgeton, May 5th, 1877.

CREASOTE AND CARBOLIC ACID.

By Adolph Graetzel.[1]

In England, Morson's creasote is preferred to beechwood-tar creasote, on account of its pleasant oder. Comparative experiments were made with it, and with the following substances: crystallized carbolic acid; commercial beechwood-tar creasote, highly purified and distilling com-

[1] Translated and abridged from "Archiv der Pharmacie," Feb., 1877, by E. Lamhofer.

pletely between 200–226°C.; further, guaiacol and creasol which were produced from the potassium compound of creasol, purified by repeated crystallization from alcohol and ether, and then obtained by fractional distillation. The creasote and carbolic acid were dissolved in hot water, allowed to cool and then filtered.

A. The aqueous solution of:

To 15 cc. of test-fluid added one drop of:	*Beechwood tar Creasote*	*Carbolic Acid.*	*Morson's Creasote.*
Ferric chloride (cryst.) dissolved in 10 pts. of water	First blue, then brown; after standing, orange	Violet, lasting	First blue, then olive-green, at last dirty yellow
On further addition	Dark-brown precipitate	Violet, lasting	Light-brown precipitate
Ferric acetate dry, dissolved in 10 pts. of water	Brown, afterwards turning somewhat to violet, and at last brown precipitate	Brown and clear solution	Same as carbolic acid
Ferrous sulphate, dry, dissolved in 20 pts. of water	Blue, then acquiring a violet tint, and at last brown precipitate	Violet, lasting, without precipitate	On dropping in, grass-green; then yellow precipitate
Lead nitrate, dissolved in 10 pts. of water	Clear, without effect	Turbidness; after standing, a little precipitate	Same as carbolic acid
Stannous chloride dissolved 10 parts of water	White precipitate, soluble in excess of stannous chloride	Slight precipitate; insoluble in excess	Same as carbolic acid
Neutral acetate of lead, dissolved in 10 pts. of water	White precipitate, soluble in excess	Slight precipitate; soluble in excess	White precipitate; only partially soluble in excess

B. 1 part Creasote, or Carbolic Acid, in 10 parts of Alcohol (92 per cent., Tralles).

Aqueous solution of ferric chloride with one drop:	On dropping in, blue; then green	On dropping in, violet; then green	On dropping in, green; then beautiful cerulean blue

C. Creasote and Carbolic Acid, unmixed.

With saturated alcoholic solution of ferric chloride, adding 1 drop:	Dirty violet	On dropping in, yellowish-green; then brown	On dropping in, green; then turbid light-brown
On the addition of more drops:	Immediately green	Immediately green	Immediately green

Chemically pure guaiacol and creasol behaved with the above reagents like beechwood tar creasote.

Further was tried the behavior of glycerin towards creasote, in the hope of finding a reagent by the aid of which the amount of carbolic acid in adulterated creasote could be determined. The result confirmed Read's observation ("Am. Jour. Phar.," 1874, p. 292) that Morson's

creasote is insoluable in glycerin, spec. gr. 1·250, while carbolic acid forms a clear solution. Beechwood-tar creasote behaves quite differently. It does not dissolve in glycerin but when shaken with it cold takes up 92 per cent., a part of which separates again on warming, only 50 per cent. glycerin remaining dissolved. An addition of only 5 per cent. carbolic acid produces a clear solution of glycerin in creasote. But if 10 per cent. or more of oil of turpentine is added to beech-wood-tar creasote, it becomes insoluable in glycerin like Morson's creasote. The insolubility in glycerin, mentioned on Morson's labels, is therefore only a criterion for an impure article. The behavior towards ammonia, as mentioned by Read, was tried with solution of ammonia of 0·940 sp. gr. Beechwood-tar creasote, as well as Morson's creasote, took up only 15 per cent. of ammonia water, and the addition of 10 per cent. carbolic acid did not produce any change; but 15 per cent. of carbolic acid caused 5 per cent. more of the ammonia water to be taken up. It was ascertained that carbolic acid will produce a clear solution only with 25 per cent. of ammonia water, sp. gr. 0·940, and that if more be added, will separate again. Creasote in an alcoholic solution will separate on the addition of ammonia water, sp. gr. 0·940, even if it is mixed with carbolic acid, while an alcoholic solution of carbolic acid will remain clear on the addition of any quantity of ammonia water.

The ammonia which was not taken up by Morson's or beechwood-tar creasote, acquired after several hours a dirty yellow, and after 24 hours a dirty olive-green coloration; while the creasotes saturated with the ammonia water became yellow. Alcoholic solutions of the cresotes, treated with water of ammonia, produced after a few hours a beautiful olive-green coloration.

Carbolic acid treated with ammonia became violet, while the undis-ammonia remained colorless.

Chemically pure guaiacol gave with ammonia solution (sp. grav. 0·940), immediately, a white crystalline combination, which was not soluble in an excess of ammonia; the fluid portion not taken up by the guaiacol became intensively green after several hours.

Experiments made with pure guaiacol by boiling with nitric acid resulted in the production of oxalic and picric acids; and pure guaiacol, creasol and creasote gave a blue reaction with anilin and hypochlo-

rite of sodium, which Prof. Jacquemin (1875) regarded as characteristic for carbolic acid.

Carbolic acid produces with bromine water a dense white precipitate of tribromphenol; a similar but orange-colored compound is formed with creasote.

The "British Pharmacopœia" mentions among the qualities of creasote, also: "A slip of deal dipped into creasote, and afterwards into hydrochloric acid, acquires, on exposure for a short time to the air, a greenish-blue color."

But this coloration of pinewood is obtained, not only with creasote, but also with carbolic acid and muriatic acid, and is, according to Tiemann and Haarmann, a characteristic reaction of coniferin.

From the above may be seen that the different reactions suggested for creasote and carbolic acid can only be relied on if each product is in a chemically pure condition, but that it is difficult to prove adulterations of creasote with carbolic acid if the addition is made in a proportion not exceeding 15 or 20 per cent.

The above reactions have already shown that Morson's creasote widely differs from beechwood-tar creasote, a fact which was confirmed by the further investigations. After treating it with caustic lye, an intense odor of a fine quality of oil of turpentine appeared, to which the pleasant odor of English creasote is due.

The high boiling point of 214 to 239° C. leads to the suspicion that it contains, also, other oils, which, however, are very difficult to separate.

The author has had no difficulty in obtaining from pinewood-tar a product exactly like Morson's creasote, and this seems to be its true source. While the purification of beechwood-tar creasote is connected with great difficulties, the preparation of such a mixed body as pinewood-tar creasote is very easy.

But this is lacking the principal constituent of beechwood-tar creasote—*guaiacol*, and, considering the great quantity of foreign substances in Morson's creasote which have not been investigated, its physiological and medicinal qualities cannot be equal to beechwood-tar creasote. The medicinal qualities of pinewood-tar creasote, on account of its impure condition, might often have just the opposite effect of what we are entitled to expect from beechwood-tar creasote, and it should be rejected, therefore, as unfit for pharmaceutical purposes.

Pure beechwood-tar creasote consists chiefly of guaiacol, with a little creasol, and should have the following qualities:

It is a colorless, or nearly colorless, oily fluid, of 1·08 sp. grav., distilling, unaltered, between 200° and 250° C. After exposure to light for several months, even in open glasses, it should only become light-yellow (wine color), and not red. Creasote which turns red contains foreign bodies, and is not fit for medicinal use. It must be entirely soluble in caustic lye, and on the addition of water carbohydrogen oils should not separate. Most of these are very difficult to remove, and possess a disagreeable odor. It should answer to the above-mentioned tests, and be soluble in 80 parts of cold water. Boiling water takes up a larger quantity, but separates it again after several days. It takes up 50 per cent. of its volume of glycerin—sp. gravity 1·250.

An adulteration of creasote with carbolic acid can be approximately determined by fractional distillation, and especially by combining with a saturated alcoholic potash lye, and recrystallizing from ether. The carbolic acid enters the mother-liquor, from which it may be separated by an acid, and its presence proved by another distillation.

PRACTICAL NOTES ON THE ROTATORY POWER OF THE VOLATILE OILS.

By F. A. Flückiger.[1]

If we say that the solid or fluid (at the ordinary temperature) ethereal oils are the bearers of the odor and mostly also of the taste of the respective plants, this sentence will pretty well express the general idea of the nature of the ethereal oils and stearoptens. Though little accurate, it is still easier to dispute this definition than to give a more satisfactory one. Some volatile oils, which are liquid at 17°C., have very little odor, as for instance the oil of the seeds of Nigella sativa, and amongst the solid parts of the ethereal oils many are entirely odorless, like the crystallizable parts of rose- and bergamot-oil. The odor is therefore not an indispensable necessary quality of these bodies, neither is the distillability, as many of the oils are not distillable to the last drop.

If we must acknowledge that no quality can be mentioned as being

[1] Abstract from a paper published in "Archiv der Pharmacie," March, translated by Edward Lamhofer.

unexceptionally common to all these bodies, we must admit the correctness of the negative affirmation, that not one of the so-called ethereal oils is an unmixed body—a pure, definite chemical compound. Nearest to it are the volatile oils of mustard and bitter almond. Even the numerous terebens of the simple formula (C_5H_8) seem to be mixtures, probably of $C_{10}H_{16}$, $C_{15}H_{24}$, $C_{20}H_{32}$, and the slight generation of gas, which commences in the cold when oil of turpentine is acted upon by sodium, indicates oxygen, although oxidized substances (water?) are only present in a very limited quantity in the hydrocarbons of the abietineæ and of most aurantiaceæ. We must therefore always remember that volatile oils are mixtures, and naturally mixtures in various proportions, a fact which is readily observed in the oils of parsley fruit and of Mentha rotundifolia. The yield of the former is one-half per cent., and if the distillate is left undisturbed at about 25°C, it will separate in nearly two equal parts, one rising to the surface, the other sinking to the bottom of the water; both portions turn the plane of polarization to the left, the last one much less than the first. The oil of wild-grown Mentha rotundifolia, which was prepared in July, 1876, showed at a column length of 50 mill. a deviation of 39·2° to the left, while a sample prepared in September of the same year showed only half as much. Daily experience teaches us further that the chemical and physical properties of ethereal oils, and especially the fluid ones, are more subject to considerable changes than many other organic substances. These observations bring the author to the conclusion that the rotatory power of ethereal oils cannot serve as a means of recognition.

A small minority of ethereal oils is incapable of turning the plane of polarization. It is remarkable that among these are the oils of mustard and bitter almond, and several more, whose chemical constitution is also better known than the majority of the others. To this class belong the oils of anise, gaultheria, cloves, thyme and cinnamon, as far as their well-investigated principal constituents are concerned, which are lacking the rotating power. This is in fact wanting in Anethol $C_6H_4\begin{cases}O.CH_3\\C_3H_5,\end{cases}$ Salicylate of Methyl $C_6H_4\begin{cases}OH\\COOCH_3,\end{cases}$ Eugenol $C_6H_3\begin{cases}OCH_3\\OH\\CH=CH-CH_3,\end{cases}$ Thymol $C_6H_3\begin{cases}CH_3\\OH\\C_3H_7,\end{cases}$ and also in the Cinnamic Aldehyd $C_6H_5-CH=CH-COH$ and the principal constituent of

sassafras oil, the Safrol $C_{10}H_{10}O_2$ whose chemical constitution is still unknown, but may bear some relation to Anethol $C_{10}H_{12}O$, and Eugenol $C_{10}H_{12}O_2$. Mustard oil and oil of bitter almonds do not rotate at all, the other six oils only in a slight degree on account of containing traces of other volatile oils, probably Carbohydrogens.

The addition of oils able to turn the plane of polarization may be easily detected in oils which do not affect polarized light. We must declare mustard oil or oil of bitter almonds as impure, which shows only the least rotating power, and also oil of anise, staranise, gaultheria, cloves, rose, sassafras, cinnamon, which, in the tube of Wild's Polaristrobometer of 50 millimeters length, would indicate more than a few degrees. But the possibility of an adulteration is not excluded, although the samples of these oils may not show any rotating power. If there were a cheap ethereal oil which would not affect the plane of polarization, it would be an excellent means in the hand of an adulterator for diluting the more expensive oils. Such an oil is scarcely to be found in nature, but may be easily prepared.

The American oil of turpentine, of Pinus australis or Pinus Taeda, and the oil of Abies excelsa, turn to the right; the French oil of turpentine of Pinus maritima (Pinus Pinaster) and of other species, strongly to the left. By preparing a mixture of such two oils, acting in opposite direction, it would be comparatively easy to obtain an oil without effect on polarized light. Oil of turpentine is by no means the only one possessing such properties. Sainte-Claire Deville found oil of elemi to have a left rotation; the author observed a right one in oil of Manila elemi. Carvol from caraway turns to the right, from crisped mint to the left. Some camphors, gums, sugars, organic acids and alkaloids are cited as compounds, either chemically identical or closely related, and still of very different optical behavior.

Mixtures in which the rotatory power of one substance is neutralized by the opposite action of another accompanying body, are to be expected in nature, and in fact, present. Very probably changes are naturally produced by various unknown causes.

In turpentines we find very often constituents of opposite rotating power. Venice turpentine, for instance, if diluted with aceton or benzin, turns to the right; the oil distilled from it to the left, and the remaining resin to the right. Canada balsam and Strassburg turpentine have a similar behavior. It is therefore to be assumed that

the magnitude of rotating power of such mixed bodies as ethereal oils is the product of different co-operating factors. If the constituents of the oils were always mixed in the same proportions, the rotating power might also remain the same. The author discusses also the effect of solvents upon the rotating power, the variation in this respect of undoubtedly genuine volatile oils, the similarity in the behavior of very different oils, etc., and concerning the value of the rotating power as a test for volatile oils, arrives at the following conclusions:

I. Among the constituents of volatile oils are both rotating and non-rotating.

II. The rotating power of an oil is the product of the rotatory power of its single constituents.

III. These constituents, being present in changeable proportions, it is on this account that one and the same oil does not always exhibit the same rotating power.

IV. A second reason is to be looked for in the fact that a body of a definite chemical composition, for instance the molecule $C_{10}H_{16}$, on keeping, may undergo chemical changes (by taking up O or OH_2) which would also affect the optical qualities of the oil.

V. The rotation is further influenced by the quality and quantity of substances, which themselves have no effect on the plane of polarization.

VI. The same influence is to be expected in mixtures, in which several optically active substances are present. How complicated these qualities may, and in ethereal oils certainly must be, will be illustrated by the following considerations: A is an optically indifferent stearopten, dissolved in B, a left turning terebene, and accompanied by C—perhaps produced by oxidation of the former, and acting to the right. The rotation of the oil will in the first line depend on the relative proportions of B and C; should C have a much higher boiling point than B, a slight variation in the process of distillation alone would be sufficient to produce considerable differences in the volatile oil of the same plant. Another question would be whether the presence of "A," regardless of the simple fact of dilution, would not affect the optical qualities of "B" and "C."

VII. Although the rotating power is the result of different co-operating powers, we must further consider that even these results, according to "IV," cannot be accepted as unchangeable.

VIII. The genuineness of optically indifferent volatile oils, and of such whose principal constituents are optically indifferent, can, for the reasons stated, only be inferred with caution if they show none or only very little rotating power.

The author comes to the conclusion that the rotating power of volatile oils is of no real practical value to the pharmacist, although he would not like to see it omitted in a full scientific characteristic.

GLEANINGS FROM THE FOREIGN JOURNALS.

BY THE EDITOR.

Preservation of Aqueous Solutions of Tartaric Acid.—Wittstein has, as early as 1842, directed attention to the fact that the flocculent masses which appear in a solution of tartaric acid soon after it has been made, is not caused by the decomposition of the acid. It being desirable to have such a solution on hand for analytical purposes, he has tried the preservative effects of salicylic acid with complete success in a solution made with 1 part of tartaric acid, 5 parts of water, and one one-thousandth part of salicylic acid. After three months it was as clear as when first made.—*Zeitschr. Oest. Apoth. Ver.*, No. 7.

Beech Tar Creasote.—F. Tiemann and B. Mendelsohn have made the following observations: The fraction of creasote boiling at 220°C. consists mainly of creosol and phlorol, most of the former of which is separated as potassium salt by dissolving the oily liquid in its own volume of ether, and adding to it a concentrated alcoholic solution of potassa; *creosol* $=C_8H_{10}O_2$ is liberated by an acid; when boiled for several hours with acetic anhydrid, it is converted into *acetylcreosol* $=C_{10}H_{12}O_3$, an oily liquid, from which *vanillic acid* $=C_8H_8O_4$ may be obtained by diffusing the former in diluted acetic acid and oxidizing with a slight excess of potassium permanganate, neutralizing with soda, evaporating to a small bulk, acidulating with sulphuric acid and agitation with ether; on the evaporation of the ether vanillic acid is left, which, when pure, is inodorous.

The mother-liquor from the potassium creosol contains *phlorol* $=C_8H_{10}O$, which was converted into methyl-phlorol, and from this, by boiling with potassium permanganate, oxyphtalic acid $=C_8H_6O_5$ was obtained.—*Ber. d. Chem. Ges.*, 1877, p. 57–63.

Testing of Salicylic Acid.—H. Kolbe recommends to dissolve a little of the acid in 10 times its weight of strong alcohol, and to allow the solution to evaporate spontaneously from a watch crystal. The remaining salicylic acid will form a crystalline ring, which is perfectly white if the acid was strictly pure, but will be of a yellowish or yellow color if it was precipitated merely without further purification. If the residue has a brown color it should be rejected for medicinal purposes purposes, even if the powder was white.—*Phar. Centralh.*, 1876, No. 49.

Hager states that pure salicylic acid, equal in volume to the size of a bean, will yield after agitation with about 5 cc. of pure sulphuric acid a colorless solution, while others which yielded a white residue from the alcoholic solution rendered yellowish to brown-yellow solutions.—*Ibid.*, No. 51.

Test for the Presence of Carbolic in Salicylic Acid.—Prof. Almén employs for this purpose ammonia and chlorinated soda, which produce with carbolic acid a blue color, turning red by acids and blue again on the addition of an alkali. Solutions of phenol, containing one in 5,000, produce the color at once; solutions one in 50,000, only after 24 hours. Salicylic acid does not give this reaction. It is important that an excess of chlorine be avoided, and that sufficient ammonia be added to impart an alkaline reaction.—*Phar. Zeitung.*

Dispensing of Salicylic Acid.—In case salicylic acid be prescribed with water in insufficient quantity to yield a permanent solution, James W. White recommends to dispense it suspended by the aid of tragacanth, 20 grains of which will be sufficient for a 6 oz. mixture. A good pill mass will be obtained by beating salicylic acid with one-tenth its weight of borax and the same quantity of glycerin; 6 grains of the mass represent 5 grains of acid, and do not form an inconveniently large pill.—*Phar. Journ. and Trans.*, Dec. 16, 1876.

Hydriodic Acid.—Prof. H. Kolbe finds the following the most satisfactory method for preparing this acid: A retort containing 10 parts of iodine is filled with carbonic acid gas; afterwards 1 part of phosphorus is introduced in small quantities, heat is then applied for a short time to the liquid mixture of bi- and teriodide of phosphorus, and when cooled again 4 parts of water are added. A copious evolution of hydriodic acid gas, free from iodine, takes place on the application of a moderate heat.—*Jour. f. prakt. Chem.*, 1877, p. 172.

Artificial cherry-laurel water, resembling in odor and composition that obtained by distillation from the leaves, may be prepared, according to A. Ripping of Rotterdam, by dissolving 6 grams of oil of cherry-laurel and 4·5 grams cyanide of potassium in one half liter of water, and distilling over a direct fire from a tubulated retort, a current of carbonic acid gas being passed through it at the same time. (The distillate is afterwards diluted with distilled water so as to contain one-tenth per cent. HCy.) Thus prepared it is free from formic acid, and contains variable quantities of ammonium cyanide, like the water obtained from the leaves; if oil of bitter almonds be substituted for the cherry-laurel oil, a preparation very different in odor is obtained.—*Archiv d. Phar.*, Dec., 1876, 526–531.

The best emulsion of chloroform, according to Jaillard, is obtained by agitating it with 100 times its quantity, or more, of milk, which may be sweetened; it thereby becomes very finely divided, and remains permanently suspended.—*L'Univer. Pharm.*, 1876, p. 323.

Antispasmodic Potion.—Jeannel recommends the following formula, proposed by Hermant, as a valuable substitute in such cases where the bulk of the officinal (French) preparation is an objection: Oil of peppermint 1 gram, 80 per cent. alcohol 6 grams, Sydenham's laudanum 10 grams, ether 30 grams. Ten drops of this mixture, added to a tablespoonful of water, are stated to represent 15 grams of the former.—*Jour. de Phar. d'Anv.*, 1877, p. 72.

The French "Codex" cantains a formula for antispasmodic potion and one for opiated antispasmodic potion; the former is made by mixing syrup of orange flowers 30 grams, orange-flower water 30 grams, linden-flower water 90 grams, and ether 2 grams. The latter is directed to be made with syrup of opium 15 grams, simple syrup 10 grams, orange-flower water 15 grams, water 100 grams, and ether 1 gram.

Iodoform Pencils have been recommended by Dr. Gallard in the treatment of superficial ulcerations of the neck of the uterus, by introducing them to the ulcerated part and keeping them in position by means of a plug of cotton. They are made by intimately mixing 10 grams of iodoform with 0·5 grm. gum arabic and with mucilage, forming a pill mass, which is to be divided into 10 cylinders of 4 centimeters (about 1½ inch) length, when they are dried in the air and preserved from contact with the light.—*Union Méd.*, Jan. 7.

Change of Cantharidin in Cantharides.—R. Wolff, of Buenos Ayres, used for his experiments Lytta aspersa, which is there generally employed. On treating 100 grms. with ether, ·815 grm. cantharidin was obtained, besides some fixed oil which, after saponification, yielded ·04 grm. more of that principle. The lytta, exhausted with ether, was now extracted with warm water, the liquid evaporated to a syrupy consistence and precipitated with barium chloride. The washed brown precipitate was mixed with an excess of hydrochloric acid, evaporated to dryness and the residue exhausted with chloroform, which on evaporation and washing with ether left ·46 grm. of white tabular crystals which possess vesicating properties, are soluble in water, more in alcohol and ether, and rather freely in chloroform and acetic ether. On evaporating the latter solution, cantharidin is left. It is soluble in sulphuric acid, and on the addition of water cantharidin is precipitated, sulphate of ammonium remaining in solution. From its solution in potassa, it is separated in an unaltered condition on neutralization with an acid. Boiling with ammonia and evaporation to dryness causes this cantharidin ammonia compound to combine with more ammonia.

This second compound crystallizes from hot water in needles; it is also vesicating, but is slightly soluble even in hot alcohol, ether and chloroform; but dissolves in acetic ether which, on evaporation, leaves cantharidin. It dissolves in sulphuric acid, from which solution no precipitation is effected by water. Acids seem to combine with it, for when its solution in muriatic acid is evaporated to dryness, the residue is freely soluble in hot water and precipitated by silver nitrate, the precipitate being insoluble in nitric acid. Heated with potassa, it is partly decomposed into the first described ammonia compound.

If cantharidin is dissolved in potassa, the solution precipitated by a salt of zinc (or copper, or magnesia), the precipitate redissolved in ammonia, and the solution supersaturated with an acid, the first-described ammonia compound is separated in crystalline granules. A similar reaction takes place, probably, in cantharides; they contain magnesium salts, and when ammonia is generated in them through the agency of moisture, the conditions for the formation of that compound are present. The above results explain also why larger yields of cantharidin are obtained by treatment with acetic ether.

The author argues in favor of preparations of cantharidin in place of the deteriorating and therefore unreliable cantharides.—*Archiv d. Phar.*, Jan., 1877, p. 22–30.

Cholesterin in Urine.—A. Poehl has found ·25 per cent. of cholesterin in the urine of an epileptic patient who had taken large quantities of bromide of potassium. It was readily extracted from the urine by agitating it with ether, and contained then a biliary acid, probably glycocholic.—*Phar. Zeitschr. f. Russl.*, 1876, p. 737-740.

VARIETIES.

Pharmaceutical Schools.—The healing art has, for ages, embraced both the application of therapeutical knowledge and the supply and preparation of remedial agents; and, until the separation of these branches as the arts of medicine and of pharmacy, at a comparatively recent time, the history of medicine, and of medical schools and literature embodied that of pharmacy; while, on the other hand, at an earlier period, both medicine and pharmacy were merged, to a large extent, in the pursuits and history of alchemy. Aside from the earliest traditions of the first crude stages of medical and pharmaceutical science in Egypt, at so remote an age as the sixteenth century B. C., as recorded in the "Papyrus Ebers," the art of pharmacy, as a special branch of that of medicine, seems to have been first practiced among the Arabs; and establishments, recognized for the supply of remedial agents are said to have been first instituted in Bagdad, in the year 754 A. D. The first systematic attempt at a methodical collection and classification of recognized *formulæ* is said to have been compiled by the Arab physician and philosopher Sabor ebn Sahel, in the latter part of the ninth century. In conjunction with medicine, pharmacy was first taught, as a branch of university instruction, at the celebrated school at Salerno. During the following centuries, the establishing of pharmacies and measures for a legal regulation of the art of pharmacy extended into Western Europe, and the newly established universities became centers of research and learning. Yet the absorbing problems of the transmutation of base metals into gold, and of the existence of a universal remedy, potent to avert disease, to heal sickness, to maintain or restore youth, and to prolong life, for centuries engaged the aims and inspired the efforts of the wisest and most learned men, in a search throughout nature for the "philosopher's stone" and the "elixir of life." The long pursuit of these phantoms, and the visionary but most productive speculations of alchemy, resulted in the accumulation of a vast amount of chemical and physical knowledge, and in the most important discoveries in the domain of chemical operations, processes and products. These added largely to the compass of the *materia medica*, and contributed much to prepare that revolution in the intellectual world, no less than in the material resources of men, which, at the close of the last century, culminated in the overthrow of old ideas and systems, and laid a foundation for the modern theories of chemical philosophy, for the subsequent wonderful strides in their practical applications to all the affairs of industrial and social life, and for their productive influence upon the advancement of physiological, pharmaceutical and analytical chemistry.

During the struggles of this remarkable revolution, which, among its other results,

separated medicine and pharmacy as independent correlative branches, the latter was the leading and most successful cultivator of chemistry, and attained at that time, and especially at the close of the last and the first half of the present century, in continental Europe, its culmination. It supplied from among its ranks the newly created chairs both of chemistry and of pharmacy, and frequently of botany also, at the universities and special schools for medicine, pharmacy, agriculture and kindred arts; the increasing branches of chemical industry and manufacrure, too, were largely and successfully occupied and cultivated by pharmacists. Pharmacy emancipated itself more and more, in the civilized countries, from co-education with and subordination to medicine; special schools, or at the universities, special chairs, for instruction in pharmaceutical chemistry and pharmacognosy, were established; and both the standard of qualification and the practice of pharmacy, like that of medicine, were restricted and controlled by the State. Since the middle of the present century, by the rapid strides in the progress and application of the physical sciences, particularly of chemistry in its various relations, the position of pharmacy has somewhat changed. Chemistry has risen to a commanding station among the physical sciences, and in the industry and wealth of nations; its application in the manufacture and supply of all chemical products cheaply on a commercial scale, has largely deprived the pharmacist of one of the original and most important and instructive objects of his pursuit—the preparation of medicinal chemicals and many of the pharmaceutical products.[1] On the other hand, pharmacy is losing scope by the decrease in the use of medicines, in consequence of the general increase of hygienic knowledge, and the progress of medical science. The former preeminently professional character of pharmacy has, in consequence, gradually given way to a more mercantile and trade aspect. But, notwithstanding the diminution of its resources and of its former scope of application, the requisite standard of proficiency is, as yet, everywhere maintained; and, in countries of a growing civilization, pharmaceutical education is continually and correspondingly raised. Most countries, therefore, at present, either have special schools for the higher education of pharmacists, or else afford instruction in the pharmaceutical branches at universities, or medical or technical institutions.

In the amount of the preparatory education required, the high standard of scientific and practical qualification, and the restrictions enforced by law and controlled by the government, Germany ranks highest. The candidate for apprenticeship must have attained maturity for the second class (*Ober-Secunda*) of the gymnasium, or must have passed through a realschool. The apprenticeship must last three years, during which time the pupil's progress, and the obligatory instruction by his master, are controlled by annual examinations by a delegate of the district government. At the close of the apprenticeship, and after successfully passing an examination before a board, also appointed by the district government, the candidate has to complete his practical experience by serving for three years more as clerk; and he is then entitled to enter upon the obligatory course of university study at any one of the twenty German universities. He is free to attend such lectures as he may choose; and, at the close of each lecture term, he may select another univer-

[1] See, also, Problems and Future of Pharmacy, "Am. Journ. Pharm," July, 1874, p. 321.

sity, according to his option; while the state requires, with uncompromising severity, the satisfactory passage of a comprehensive final examination. To this the student is only admitted after having attended the lectures and laboratory instruction for at least three lecture terms (1½ years); and, upon passing it, the state grants him a license for the practice of pharmacy throughout the empire.[1] Many graduates choose to acquire, by a continuation of university and laboratory studies, and by the subsequent passage of an examination before the philosophical faculty of a university, the degree of Phil.D. Similar, and nearly equally strict, is the course of pharmaceutical education and qualification in Austria, Hungary, Russia, Switzerland, Sweden, Norway and Denmark; but somewhat less strict in Roumania, Italy and Greece. In France, pharmaceutical education is controlled by the state so far that students, after a more or less brief experience in drug-stores, have to attend, for one or two years, the lectures at one of the pharmaceutical schools at Paris, Nancy or Montpelier, or at the medical and pharmaceutical schools at Nantes or Marseilles, and subsequently must pass an examination. Upon the satisfactory passage of this, the student receives, according to the time of his study and the price he is able to pay, the diploma as a *pharmacien* of the first, or of the second class. The former is entitled to establish himself indiscriminately, while the latter is allowed to do so only in small cities. The standard of pharmaceutical education is somewhat higher in Belgium and the Netherlands, but perhaps less strict in practical proficiency. The student has first to attend lectures, and then to attain skill and experience in pharmacy, when he is admitted to examination and subsequently to practice. In Spain and Portugal, the course of pharmaceutical education, and the qualification required on the part of the state, seem to be similar to those in France. The three Spanish universities in Madrid, Barcelona, and Granada, and the medical schools at Lisbon, Oporto and Coimbra, in Portugal, afford lectures to pharmaceutical students. Education in this department, in Turkey, while it is not uniformly obligatory, embraces an apprenticeship of three years, and a subsequent attendance upon the lectures at the Imperial Institute, in Constantinople, which also has the direction of the examination, and grants licenses to those who apply for and pass it successfully. In Great Britain, the state has exerted an obligatory influence on the qualification of pharmacists since 1868; but it leaves this control to the Pharmaceutical Society of Great Britain, and to the Privy Council. The only restriction consists in a registry statute, requiring two successive examinations: a preliminary one for registration as "apprentice or student," and a minor examination, for a license as "chemist and druggist," or a major examination for a license as "pharmaceutical chemist." The state of pharmacy, and the standard of pharmaceutical education, in the various countries of Spanish and Portuguese America, is comparatively little known. In several of them, as for instance, in Mexico, Brazil, Peru, and others, the state exercises a more or less strict, although not uniformly efficient, control; while, in other states, either the qualification for the practice of pharmacy is not restricted, or the control is more nominal than real. Pharmaceutical education and practice in Canada stand in close relation to those of Great Britain and the United States.

[1] See also Pharmacy in the German Empire; "Am. Journ. Pharm.," Aug., Sept., 1871, pp. 337 and 389.

The standard of pharmacy and pharmaceutical education in the United States is not uniform, because it is not obligatory; and until recently it has been left entirely to individual option and efforts. While sporadic attempts toward some kind of legal regulation have mostly failed of virtual effect, yet a strong and increasing body of accomplished pharmacists, largely strengthened by the immigrated German element, has grown up; and, by its influence and efforts, has contributed gradually to raise the standard of pharmacy, and to attain, in several states, and in a number of the largest cities, some authoritative control of the qualification of pharmacists. Chartered local associations (colleges of pharmacy) have been established in these cities and states, and they have, in pursuit of their aims and objects, founded schools of pharmacy. Chartered schools of pharmacy were in existence, in 1876, in the following cities: Philadelphia (founded in 1821); New York (1831); Baltimore (1855); Chicago (1859); Boston (1867); Ann Arbor (1868); Cincinnati (1870); St. Louis (1871); Louisville (1871); San Francisco (1872); Washington, D. C. (1873); Nashville (1873). These institutions grant, upon their own mutually recognized authority, diplomas with the degree of Graduate of Pharmacy to those candidates, without regard as yet to their preliminary education, who have had experience in drug-stores for four years, have attended at least two courses of lectures at one of the pharmaceutical schools, or at some medical or kindred college, where chemistry, chemical analysis, botany, pharmacognosy, and practical pharmacy are taught, and who subsequently have passed a satisfactory examination before a board of trustees of the College of Pharmacy. The colleges and schools of pharmacy in the United States have thus far acted harmoniously in their voluntary and successful efforts for a gradual and uniform elevation of the scope and the standard of education a proficiency among pharmacists. The most serious drawback to general and permanent results consists in the absence of any efficient authoritative national or state restriction and control of the practice of pharmacy, and in a consequent excessive and detrimental overcrowding of the profession, and for causes previously stated, in a general decrease in the compass of legitimate application, and in the resources and material prosperity of the art of pharmacy.

F. Hoffmann. From advance sheets of "Kiddle and Schem's Cyclopædia of Education."

Pharmaceutical Statistics of France.—At the beginning of the present year there were in France 2,121 pharmacists of the first class and 4,089 of the second class—total, 6,210 *pharmaciens*. During the preceding ten years the number of first class pharmacists has decreased over 13 per cent., while those of the second class have increased over 22 per cent. In 1866, France had 2,457 pharmacists of the first and 3,346 of the second class, the total number then being 5,803. The Department of the Seine alone has 820 pharmacists, of whom 495 are of the first and 325 of the second class. During the 73 years preceding January 1, 1876, there have been granted in France 16,650 pharmaceutical degrees.—*Rép. de Phar.*, 1877, p. 63.

An excellent cement or paste, possessing great adhesive properties and applicable for leather, wood, etc., is obtained by coagulating milk by means of acetic acid,

washing the precipitated casein well with water, and dissolving it in a soda solution saturated in the cold, whereby a clear, thickish liquid is formed, leaving a glossy residue.—*Phar. Handelsbl.*, February 28.

Ferric chromate is obtained, according to R. Kayser, by precipitating ferric chloride with neutral potassium chromate; dried at 40°C., it contains 34·58 per cent. ferric oxide and 65·42 per cent. chromic acid, is a light orange-colored powder, insoluble in water, easily soluble in acids, and fusible to a brown mass. As it is not altered by sulphuretted hydrogen, it is preferable to chromate of lead as a paint. —*Zeits. Oester. Apoth. Ver.*, No. 1, from *Monit. des Prod. Chim.*, V, No. 20.

Detection of Rosin in Shellac.—F. Dietlen states that colophony imparts gloss to the dull fracture of shellac. Ligroin dissolves the former, but not the latter, and may be used for the estimation of rosin if used as an adulterant of shellac.—*Ibid.*, No. 5, from *Dingl. Jour.*, ccxxi.

Adulterated Wax.—It appears from a communication to the "Phar. Zeitung," No. 23, that an extensive trade is carried on from Stettin with wax adulterated with 50 per cent. of resin.

Chloral Cream.—A French pharmaceutical journal recommends the following as an agreeable formula for the administration of chloral: Take of finely-powdered sugar, 100 parts; chloral hydrate, 5 parts; water, 15 parts. Dissolve the chloral in the water, and triturate with the sugar in a mortar. An aromatic flavor is then obtained by the addition of the artificial essence of pineapple or the essence of peppermint.—*Lancet and Observer*, December, 1876.

Ammoniacal tincture of musk is recommended by Prof. Lebert to be prepared of musk 1, carbonate of ammonium 1, distilled water 10, rectified alcohol 30 parts, essence of mint 2 drops. Dose, 25 to 30 drops in water or wine.—*Med. News and Library*, March.

THE AMERICAN PHARMACEUTICAL ASSOCIATION.

The twenty-fifth annual meeting of the American Pharmaceutical Association will assemble in the City of Toronto, Canada, on Tuesday, the 4th of September, 1877, at 3 o'clock P. M.

Members of the Association who have accepted any of the Queries, or who will have any volunteer essay to present to the Association, will please forward to the Chairman of the Committee on Papers and Queries, William McIntyre (2229 Frankford avenue, Philadelphia), a synopsis of the same previous to the meeting, as required by the by-laws of the Association.

Candidates for membership will please forward their applications, properly filled up, to the Chairman of the Executive Committee, George W. Kennedy, Pottsville, Penna.

It is also requested that the delegates from the various bodies represented in the Association will have their credentials ready to be handed in at the first meeting.

CHARLES BULLOCK, *President.*

Philadelphia, June 1, 1877.

PHARMACEUTICAL COLLEGES AND ASSOCIATIONS.

Massachusetts College of Pharmacy.—The following named officers were elected at the annual meeting: President, S. M. Colcord; Vice Presidents, T. L. Jenks and Wm. S. Folger; Recording Secretary, D. G. Wilkins; Corresponding Secretary, G. F. H. Markoe; Treasurer, E. L. Patch; Auditor, Chas. A. Tufts; Trustees—J. C. Melvin, J. T. Leary, Henry Canning, Chas. I. Eaton, I. B. Patten, G. H. Cowdin, B. F. Stacey, S. C. Tozzer.

After the destruction of the college building, January, 1877, the School of Pharmacy was enabled to continue the courses of instruction through the friendly aid of the officers of the Massachusetts Institute of Technology, who placed their chemical lecture room and apparatus at the service of the school for the balance of the session of 1876–7.

The Eleventh Annual Commencement took place in the parlor of the Revere House, on the evening of May 10, 1877 A Levee was held during the early part of the evening, and after an hour passed in social intercourse, the President, S. M. Colcord, conferred the degree of Graduate in Pharmacy upon the following named gentlemen: Henry Knox Appleton, Jr., Edwin Porter Burley, George William Flynn, George Melvin Hoyt, Frank Bassett Meade, Jonathan Washburn Pratt, Francis Cook Simson, Geo. Howland Stoddard, John Townsend. A certificate of proficiency was presented to Miss Louise Baker. The valedictory was delivered by Prof. G. F. H. Markoe. The graduating exercises over, the company, to the number of one hundred, adjourned to the dining hall, and partook of an elegantly served dinner, given in honor of the class of '77.

The New Jersey Pharmaceutical Association held its annual meeting at Apollo Hall, in the city of Newark, May 16, the President, H. P. Reynolds, in the chair. The President made an opening address, in which he spoke of the unusual interest attaching to this meeting, on account of the recent passage of the long-desired law to regulate the practice of pharmacy—which provides for the appointment by the Governor of a Board of Pharmacy to grant certificates of registration to such persons as are qualified to practice pharmacy, and to cause the prosecution of those practicing without such certificate. He stated that it now devolves upon the Association to nominate to the Governor fifteen names, from which he shall select the board of five, and recommended that the Association constitute the five members who may compose the Board of Pharmacy, a committee to procure further legislation.

A committee was appointed to nominate fifteen members for presentation to

Governor Bedle; also a committee of three to report resolutions relative to the death of the late C. W. Badger.

The following names were selected by the Association to be sent to the Governor to constitute the Board of Examiners, five of which are to be selected:

Albert P. Brown, Camden; Jos. L DeLaCour, Camden; Emmor H. Lee, Camden; R Frohwein, Elizabeth; R W. Gardner, Bloomfield; Chas. Holzhauer, Newark; R. W. Vandervoort, Newark; F. L. Fiend, Newark; W. M. Townley, Newark; W. R. Laird, Jersey City; Jas. R. Merccin, Jersey City; G. W. Phillips, Jersey City; James S. Stratton, Bordentown; Randal Rickey, Trenton; Franklin Dare, Bridgeton.

The following officers were unanimously elected for the ensuing year: President, Charles B. Smith, Newark; First Vice President, George W. C. Phillips, Jersey City; Second Vice President, E. H. Lee, Camden; Treasurer, Wm. Rust; Recording Secretary, A. P. Brown, Camden; Corresponding Secretary, R. W. Vandervoort, Newark; Standing Committee—First Vice President, ex-officio Chairman; R. J. Shaw, Plainfield; Wm. R. Laird, Jersey City; Charles Holzhauer, Newark; A. S. White, Mt. Holly; R. Rickey, Trenton.

We have the pleasure of knowing most of the gentlemen nominated for the Board of Examiners, and congratulate the Association for the very judicious selection.

Pharmaceutical Society of Great Britain.—At the Pharmaceutical Meeting held March 7, President J. Williams in the chair, Dr. Paul gave a description of the the California borax lakes (see "Amer. Jour. Phar.," 1866, p. 235), from which at the present time large quantities of *borax* are obtained, and Mr. Robottom spoke of the utility of this salt in the laundry and for the preservation of animal and vegetable substances. The President alluded to the value of borax in the arts as a flux, provided it could be obtained in sufficient quantity and at a low price.

A paper was read, containing notes on the *action of chlorine upon a beam of light* and on the preparation of *liquid chlorine*, by Dr. A. Senier and A. J. G. Lowe. The authors failed to obtain an absorption spectrum from chlorine, thus confirming results previously obtained. Liquid chlorine was prepared from the crystallized hydrate, Cl_5H_2O, by draining off the liquid portion, enclosing the crystals in a combustion tube, which is sealed and afterwards heated to from 100 to 150° F., when the chlorine will appear below the chlorine water as a dense deep yellow, oily looking liquid.

At the meeting of April 4, Mr. Holmes called attention to a specimen of *gum arabic*, which formed with water a mucilage that was gelatinous when concentrated, and glairy, like white of egg, when diluted. [The same gum has been met with in the United States.—Editor.] Mr. Greenish suggested that it be examined for cell tissue and starch granules, which are observed in tragacanth.

Glass wool was also shown, and its adaptability for filtering corrosive liquids was favorably commented on. A specimen of *pure iodide of potassium* was also presented, rather as a chemical curiosity; also, some so-called *biphosphate of sodium*, which is more permanent than the ordinary phosphate and may serve a useful purpose in medicine, inasmuch as it does not precipitate calcium phosphate from solutions of calcium chloride unless neutralized.

Mr. Hancock exhibited a *machine for compounding powders*, consisting of a slightly conical cylinder, into which a sieve fits; a brush fitted to a spindle mixes the ingredients together, at the same time driving them through the sieve.

Mr. Barnard S. Proctor, in a paper on *medicine measures*, advocated to abandon the various spoons for giving medicines, and to divide liquids by the fluid drachm and half ounce, cheap measures to be furnished with each medicine. As might have been expected, the proposition elicited much diversity of opinion, but all agreed that it was a dangerous practice on the part of physicians to order powerful and even poisonous medicines in a concentrated form. Mr. Holmes very properly censured pharmacists for the introduction of such preparations, but Mr. Carteighe excused this, because in these railway times everything was wanted in the most portable form; as to the size of the dose, the primary responsibility rested on the prescriber.

Mr. Greenish made some remarks on *glycerite of tragacanth*, pronouncing it to be one of the best excipients that could be kept at the dispensing counter, and specially useful for quinia, valerianate of zinc and sulphate of iron and aloes; he prepares it by rubbing together 1 part by weight of tragacanth and 8 parts by measure of glycerin [which is one to 10 parts by weight.—Editor.] and allowing it to stand for a day or two to gelatinize. Pills made up with this glycerite did not become at all damp.

Pharmaceutical Society of Paris.—Prof Wurtz reported at the February meeting that he had obtained a considerable quantity of strychnia from the so-called *hoang nau bark.*

Messrs. P. Cazeneuve and O. Caillol described *an apparatus for exhausting vegetable powders* with volatile liquids, called digesto-still for continued displacement (*digesto destillateur à déplacement continu*). Its modification from the apparatus usually employed for the purpose will be apparent from the following description: It consists of a glass flask, surmounted by a percolator, in the centre of which a glass tube is inserted, being fastened at the lower end by means of a notched cork and terminating above in the tubular end of a curved adapter; this adapter points obliquely upwards, its mouth being connected with a reversed Liebig's condenser, and this with two Woulf's bottles in such a manner that the glass tube connecting the condenser with the first bottle reaches to the bottom of the latter, so as to act as a syphon for the liquid which may be condensed or forced into the bottle. The two bottles may be kept in cold water or ice, the last one terminating with an S safety tube containing some mercury.

In using the apparatus, some cotton is placed upon the notched cork in the percolator and upon it is packed the powder, suitably moistened with the menstruum; a sufficient quantity of the latter is put into the flask, and after all the connections have been made the flask is placed in a water bath. The vapors of the boiling menstruum ascend and pass through the glass tube (in the percolator) and the adapter into the condenser, from whence the liquid flows back again through the adapter upon the material contained in the percolator. If alcohol is used, it will rarely pass into the Woulf's bottle; but liquids like ether and carbon bisulphide will oscillate in the condenser, being forced upward by the ascending vapors during

the operation into the Woulf's bottle, from which it will be projected again upon and forced through the powder as soon as the heat for the receiving flask is withdrawn and thus a vacuum created in the apparatus In such a case the mercury may be partly projected into the apparatus and will then remain in the last bottle.

Syrup of Chloral.—P. Carles called attention to the great difference in the strength of this syrup, as made by the formulas of different authors, which vary in the amount of chloral directed between 1 and 12 per cent. Follet's syrup appears to be used in France more generally than any other, and since the dose is convenient and the odor and taste of chloral well disguised by the peppermint employed, the author recommends a somewhat modified formula, whereby a syrup even more pleasant in odor is obtained, as follows: Powder 4 grams of pure chloral hydrate in a porcelain mortar, dissolve it in 2 grams of boiling water, and add, drop by drop, of a concentrated solution of sodium carbonate until the solution has a neutral reaction. Then agitate it well with one drop of English oil of peppermint, mix it rapidly with 96 grams of simple syrup, filter if necessary, and dissolve in it one drop of chloroform. Each tablespoonful of the syrup contains one gram (15½ grains), and each teaspoonful 0·25 gram (4 grains) of chloral hydrate.

Mr. Husson made a communication concerning the inocuousness of fuchsin and a test for the *detection of foreign coloring matter in wine*, for which purpose he proposes the successive addition of alum and sugar of lead, the resulting lead sulphate precipitating only the natural coloring principle of wine, a statement which was pronounced incorrect by Mr. Videau.

A communication by Plauchud, concerning the *origin of natural sulphur waters* gave rise to considerable discussion, some maintaining that the conversion of sulphates into sulphides is effected by organic matters indiscriminately, while others believed it due to living organized beings.

Mr. Petit reported the results of the researches on *conia*, having found its density to be 0·846 and its boiling point at 170° C.; the hydrobromate and hydrochlorate of conia were found to be anhydrous salts.

Apothecaries' Society of Berlin.—At the meeting held February 20, Dr. Schacht presiding, Mr. Kobligk communicated the interesting observation that *syrupus althææ*, mixed with distilled water in proportions not exceeding four times the weight of the former, would gelatinize after some time. From his experiments, made with evaporating dishes and beakers of *hard glass*, by heating them under varied circumstances and cooling them suddenly, he recommends the use of such vessels.

Dr. Schacht made some remarks on the state of hydration of *quinia sulphate*. When recently prepared, Jobst and Hesse had found this salt to contain 15 32 per cent. or 7½ molecules of water of crystallization; this statement had recently been verified by Cownley ("Phar. Jour. and Trans.," Sept. 2, 1876), the latter also finding that on exposure to 100° C. the entire amount of water would be expelled ("Amer. Jour. Phar.," 1877, p. 71). The experiments of Dr. Schacht do not appear to coincide with this statement; but when heated to 120° C. the amount of water expelled from the commercial salt varied in different samples between 11 and 14·73

per cent., variations amounting to fully one-half per cent. being obtained from different layers contained in the same tin can. The apothecary, it seems, in purchasing quinia sulphate, always obtains it partially dehydrated by even short exposure to air, and Hager estimates the further loss while in the hands of the pharmacist, even if kept in well-stoppered bottles, at about 2 per cent., caused by occasionally opening the bottle.

At the meeting of March 20, Mr. Herbricht reported on *mercury peptonate*, which is now used by Prof. Bamberger in place of the albuminate formerly employed by him ("Amer. Jour. Phar.," 1876, p. 317), and which was found not to have the effects expected from it, probably because albuminates as such do not enter the circulation until after their conversion to pepton by the pancreas; animal and vegetable albumen is thus converted on being digested with pancreatic juice. Pepton is now largely manufactured by Darby & Gosden, London, and by Dr. H. Sanders, Amsterdam. Prof. Bamberger has communicated the following formula for preparing the solution: 1 gram of dry pepton is dissolved in 50 cc. of distilled water; to this is added 20 cc. of solution of corrosive sublimate, containing exactly 1 gram of this salt, and in order to dissolve the precipitate, 15 cc. of solution of sodium chloride, containing 18 to 20 per cent. of this salt; the solution is filtered after a few days. In the absence of dry pepton, Mr. Herbricht recommends to completely precipitate an aqueous solution of 1 gram of corrosive sublimate with solution of meat-pepton, to heat the flocculent mass with a little alcohol, wash it well and dissolve it in 2·6 grams of sodium chloride and sufficient water to make the solution measure 100 cubic centimeters.

Mr. von Brockhusen stated that *abies sylvate of sodium*, natrum sylvinicum abietinatum, which is prescribed to some extent, had been met with in the form of a yellowish brown non-pulverizable amorphous mass, which has an agreeable odor and dissolves in a small quantity of water, the solution becoming turbid with more water; it contains about 10 per cent. of soda and appears to be prepared from Strassburg turpentine (obtained from Abies pectinata). When prepared from the resin of common turpentine, it had the same properties except that the solution was not quite as clear and the odor less agreeable.

EDITORIAL DEPARTMENT.

State Pharmaceutical Societies.—In the list given on page 268 of our last number, we regret having inadvertantly omitted to mention the Mississippi State Pharmaceutical Association, which has been in existence for several years and was represented by delegations at three or four meetings of the American Pharmaceutical Association. The number of organized State Pharmaceutical Societies is thereby increased to thirteen, and from information recently received, it is very likely that another association will soon be added to this number. We are pleased to learn that there are preparations in progress having in view the organization of such a society in the State of Iowa, and we trust that others may soon follow, so

that in a short time there may be scarcely a State in which the pharmacists and druggists have not effected an organization for their mutual intercourse and improvement.

Expensive Medicines in Prescriptions are often a source of trouble to the pharmacist, inasmuch as customers are apt to complain if the price of a medicine exceeds what they consider a reasonable sum. The thoughtful physician will usually prepare the attendants of his patients for such a contingency; but sudden fluctuations in the commercial value of some articles may take place which the physician may not become acquainted with until he learns of supposed excessive charges on the part of pharmacists. In Germany and some other countries the prices of the various medicines are authoritatively fixed beforehand for one year, and the pharmacist is not permitted to charge more than regulation prices. Serious inconveniences must result, when from causes entirely beyond his control, advances are occasioned which may even go beyond the price he is entitled to charge. In this country, such matters regulate themselves, as is the case with all commodities; the seller naturally charges a fair advance on the cost price, and the consumer bears the burden of a rise as he derives the benefit from a decline in the commercial value of the article. At the present time the prices of quinia, morphia and some other drugs are seriously affected by the war in western Asia and southeastern Europe, and this would seem a good occasion to direct the attention of physicians to the cheaper alkaloids of cinchona, which have been again recommended recently by men like J. Eliot Howard, Dr. Weddell and others.

With these remarks we desire to call the attention of physicians and pharmacists to the following communication:

Editor American Journal of Pharmacy: I presume there is not a pharmacist in the city whose experience has not been similar to mine in this respect, viz.: The surprise and dissatisfaction manifested by customers when the price of a prescription containing a large quantity (say ℥i or ℥ii) of quinia, morphia, iodoform or other expensive article is told them. I have thought for some time of mentioning it to the profession, and asking, through the "Journal," the co-operation of our medical brethren in this wise to overcome the trouble.

I would suggest that whenever physicians find it necessary to prescribe any of the expensive alkaloids or other expensive medicines in any quantity to make it an object that they would say to the patient something like this: "Now this medicine will be quite expensive, but it is the only thing that will suit your case, and I would like you to get it." Then, when the price is told them, they are not surprised, and are prepared to pay a reasonable price; but on the contrary, when they expect to pay not more than 30 or 40 cents for a prescription, and you have to charge 75 cents, $1.00 or more, they are astonished, think the pharmacist is exorbitant in his charges and taking advantage of them, and go away dissatisfied, (in fact I have many times had persons refuse to have prescriptions compounded when they have asked the price beforehand), and they and the physician have both been disappointed because the medicine was not taken, whereas, if they had been prepared (by a word from the physician) to pay a fair price everything would have been satisfactory to all parties. The way I look at it in carrying out this arrangement, it is a mutual benefit to all parties. The physician, because he will know whether the party will get and take the medicine—the patient, because he will not think he is being imposed upon, and will know before he leaves home whether he can get it or not—and the pharmacist be able to get a fair price for his goods without lying under the suspicion of doing injustice by overcharging his customers.

And now as quinia and morphia have advanced to such a high figure, and money so scarce with a great many, some arrangement of this kind would seem more imperative than ever before.

I respectfully submit the above to the attention of the professions, and hope they will give it a careful consideration. JAMES KEMBLE.

Philadelphia, May 17th, 1877.

Nostrums in the Temple of Pharmacy, is the heading of an editorial which appeared in the April number of the "Pacific Medical and Surgical Journal," and in which we are taken to account in the following manner:

The "American Journal of Pharmacy" is, we believe, the oldest pharmaceutical journal in America, and it is published by authority of the Philadelphia College of Pharmacy, the oldest pharmacal college. Such institutions are regarded as exemplars in ethics and models in everything that concerns the interests and principles of pharmacy, both in form and substance. Hence, we were rather surprised to find an advertisement in the March number of the journal aforesaid containing these items:

"Fluid Extract Grindelia Robusta. From California. A specific in Asthma

"Fluid Extract Xanthium Spinosum. From Russia. A cure for Hydrophobia.

"Fluid Extract Bearsfoot. A specific for enlarged spleen.

"Dr Warburg's Tincture. A celebrated remedy for malarial fevers," etc.

It is true these are not all nostrums, properly speaking, the last alone coming under that head. But "specifics" are not much better than nostrums, especially when they pretend to cure such diseases as hydrophobia. It is true, also, that advertisements of a similar character are published in nearly all the medical and pharmacal journals in America, and quite as much so in Great Britain and elsewhere. But is it not time that pharmacists desist from making such publications? Is it not time that the various pharmaceutical societies, now well organized as they are and possessing great power, should control their members in such matters? And, above all, is it not time that the leading journal in America should set a spotless example in this respect, and refuse any longer to sanction and encourage the practice? The advertisement to which we refer occupies the very first page in the advertisement department, and it is rendered the more noteworthy because the conductors of the journal publish a standing notice that "a proper discrimination will be observed in relation to the character of advertisements."

Ever since its commencement the "American Journal of Pharmacy" *has* made "a proper discrimination" in the advertisements admitted, and not only refused many that were offered, but in all cases promptly stopped them as soon as the fraudulent character of the advertised articles became known. A nostrum, properly speaking, has *never* been advertised by this journal, and we are surprised that our cotemporary objects to an advertisement of Warburg's Tincture after, for a year or more, the medical journals of this country and Great Britain have been extolling this very same preparation as a cure for malarial fevers, some having also published a formula by which, as we believe, the tincture is not made; and medical practitioners, who had not the slightest knowledge of its composition, compelled pharmacists to procure it for their use; what is known about its composition we have stated in our last number (see page 270).

But we are pleased that the strictures by our cotemporary, in regard to the other preparations, are not based upon their character as nostrums, but rather because they are stated to be a "specific" or a "cure." Personally, we do not believe in specifics and sure cures, yet it will not be denied that some, if not all, the drugs mentioned have been recommended by certain physicians as unfailing cures or prophylactics, and we may add that one of the articles objected to is advertised in the "Pacific Journal" as *the well known California remedy* for poison oak and asthma. We grant that the term "remedy" is less comprehensive than "specific," but that it implies *curative* powers will, we think, be admitted; and if so, we would point to certain pills which our cotemporary advertises, in large letters, as being "valuable as a remedy in consumption." In the same number of the "Pacific Med. and Surg. Jour." in which the above-quoted editorial appeared, we find also advertisements stating that a certain brand of codliver oil is *the best for foreign or domestic use*, and the codliver oil of another maker to be *the best and most reliable codliver oil in the world.* A certain soap is advertised as being *invaluable* for chapped hands, etc., and another

kind which *will cure* chapped hands, and is *unequaled* as an earth dressing; and a tooth-powder, made with the latter soap, is stated to *surpass anything of the kind* ever offered to the public.

Our cotemporary has done good service in battling against the nostrum evil, yet in this case he has evidently seen the mote in his brother's eye without noticing the beam in his own.

Bullrich's Salt.—A correspondent made inquiry about the composition of Bullrich's Salt, and, on confessing our ignorance, referred us to the "Text-Book of Practical Medicine," by Professor Dr. Felix von Niemeyer, vol II, page 504, where the following passage occurs:

"It cannot be denied that in recent times the regular therapeutic employment of the so called *Bullrich's* salt, a mixture of bicarbonate and sulphuret of soda, rivals the world-renowned success of these springs (Kissengen, Karlsbad, Wiesbaden, Homburg and Vichy)—a fact which is at least opposed to the asserted latent peculiarities and advantages of the natural solutions of salt."

A high laudation, indeed, from such an authority, who, however, gives no information as to how that salt came to its peculiar name. Not finding it mentioned in any of the works at our command, we applied to a friend who for several years had been a pharmaceutical assistant in Berlin, and learned from him that a merchant of Berlin, by the name of Bullrich, had sold large quantities of a salt, for which, when called for, the apothecaries dispensed bicarbonate of sodium. It is strange that that excellent compendium, Wittstein's "Geheimmittellehre," has taken no notice of it, but stranger still that a nostrum should be deemed worthy of *regular therapeutic employment*, and be lauded in a widely known medical work as *rivaling the world-renowned success of the springs* mentioned above.

Resolutions of the Philadelphia County Medical Society, in reference to Dr. Squibb's proposition to modify the manner of revising the U. S. Pharmacopœia.—At a large meeting of the Society, after a free interchange of sentiment between the members, the following resolutions were adopted as offered by Dr. Nebinger:

Resolved, That in the opinion of the Philadelphia County Medical Society, the propositions of Dr. Squibb to modify the *period* of revision of the United States Pharmacopœia and other proposed reforms, are deserving of careful consideration by the Medical and Pharmaceutical professions.

Resolved, That in the judgment of this Society, such reforms and modifications of ancient plans can be more safely entrusted to the National Convention of the Pharmacopœia and its committee of revision, than to any new organization

Resolved, That the action of this Society be officially transmitted to Dr. John C. Riley, President of the Pharmacopœial Convention at Washington, to Dr. Bowditch, President of the American Medical Association at Chicago, and to Dr. Squibb of Brooklyn.

Resolved, That these resolutions be also published in the *Druggists' Circular*, *Chicago Pharmacist*, *Medical News*, *Philadelphia Medical Times*, *Medical and Surgical Reporter*, *The American Journal of Pharmacy*, *New York Medical Record*, and *New Remedies*, as soon as possible.

Dr. Albert H. Smith presented the following resolutions which were unanimously adopted:

Resolved, That this Society does not recognize the legal or moral right of the American Medical Association to assume the work of issuing a Pharmacopœia as proposed, nor its fitness for the work, if such right existed.

Resolved, That its delegates to the American Medical Association be instructed to use every proper means, by their votes and influence, to prevent the consummation of the plan proposed by Dr. Squibb.

The Society has acted wisely in directing the appointment of a committee with the view of subjecting the Pharmacopœia to a preliminary revision and facilitating the labor in this direction of the Pennsylvania State Medical Society.

The Revision of the Pharmacopœia is the important subject engaging the attention of the medical and pharmaceutical professions of the United States, and which has become so prominent at the present time through the proposition of Dr. Squibb to place that work entirely under the control of the American Medical Association. We do not purpose to enter into the merits of the claim for such control or ownership, which have been ably reviewed by Mr. A. B. Taylor; but it may not be amiss to sketch in a few words a plan by which a "Pharmacopœia" could be secured which would represent the actual wants of the medical profession and the pharmaceutical knowledge of the United States. To accomplish this object, it is, in our opinion, absolutely necessary to secure the active co-operation of as many medical and pharmaceutical societies as possible, so as to have all sections of the country fairly represented. This active co-operation should express itself in the preliminary revision of the "Pharmacopœia" by each society, which should be so full and complete that the revised work would represent a "Pharmacopœia" for the locality in which the society is located. All the local "Pharmacopœias" should then be referred to an *Editing Committee*, whose duty it should be to compile them into one. This committee may be small, not exceeding five in number, who may be selected from any locality, insuring their frequent meeting whenever necessary. During the progress of the revision, the clerical labors would necessarily be large and require the engagement of a secretary, whose duty it would be to prepare the material of all local "Pharmacopœias" in such a manner as would enable the committee to critically examine all the propositions and act intelligently upon them. The action of the committee should then, as soon as possible, be communicated to each society having prepared a local "Pharmacopœia," to be again critically examined, and the results of these examinations should be transmitted to the committee for their final action, to be based upon the suggestions and criticisms as reported to them from the various societies.

By this plan the active co-operation of each medical and pharmaceutical society in every part of the country could be secured, and the work, before its final adoption, would be submitted to the judgment of a large number of experts, so that the processes could scarcely fail to be as perfect as the scientific knowledge of the country could make them.

There is still a large number of those interested in the perfection of the "Pharmacopœia," who, under the rules adopted by the Pharmacopœial Convention of 1870, are not entitled to representation. We refer to the various State *Pharmaceutical* Societies, of which we now have thirteen, and hope to have many more by 1880. But in our opinion, any labor performed by them would be gladly accepted by the National Convention, and their delegates would, we believe, be received as they should be.

It will be perceived that this plan is based upon the assumption that those who

use the "Pharmacopœia," physicians as well as pharmacists, should have a weighty and controling influence in its revision. The plan suggested by Mr. Taylor (see page 294) leaves the final revision to a larger Committee appointed for that purpose, and we think that it could likewise be made to work satisfactorily. We do not believe that the revision could be accomplished by occasional meetings, if the committee was to be appointed so as to secure a fair representation of all sections of our country; the members would either have to be placed so as to be able to leave their homes for the place of meeting of the committee, and there to devote *all* their time to the revision of the "Pharmacopœia;" or what appears to us to be the more practicable course, the labor of the Executive Committee residing at and near the place of meeting, should be at once communicated to every member of the Committee of Revision for their critical examination This would be, substantially, equivalent to the course of the preceding plan, inasmuch as the members of the Committee would doubtless be selected from the delegates of those societies who have actually gone to the trouble of the preliminary revision of the "Pharmacopœia," and could, whenever desirable, consult the society in whose name they act.

Both plans avoid that centralization of power which is likely to produce unsatisfactory results, such as in our opinion might, on close analysis, be expected if Dr. Squibb's plan was followed. This does not contemplate the active co-operation of physicians and pharmacists; or if it seeks it, will most likely not obtain it, because the voice of these bodies or their representatives will have no direct bearing upon the construction of the "Pharmacopœia." It is indeed a delegation of almost absolute power to a few, and a plan admirably adapted to secure a *local* "Pharmacopœia" for the whole country, or as it has been, privately at least, stated, a *one man's* "Pharmacopœia," secured through the preponderating influence of one individual.

We do not claim originality for either of these plans. They are simply modifications, adapted to our country, of the plan followed in the creation of the "Swiss Pharmacopœia," or at the present time, in the elaboration of an appendix to the French Codex, containing the formulas and processes for new medicaments. In both cases the formulas have been published as fast as selected, so as to secure the critical examination of the largest possible number before their final adoption.

We believe that all who feel interested in a good and complete "Pharmacopœia," should feel themselves indebted to Dr. Squibb for the candor with which he has brought up this important subject; although we believe many of his reasonings faulty, and his conclusions objectionable, yet we have to thank him for having aroused the attention of the medical and pharmaceutical professions to the great importance of the work entrusted to their care.

The following communication, referring to the same subject, was received after the above was in type; it comes from a medical gentleman, at present residing in New Hampshire.

To the Editor of the American Journal of Pharmacy:

SIR—Referring to the able review of this subject by Mr. Alfred B. Taylor, in your May issue, I respectfully submit the following as covering the objectionable features in the plans already suggested:

"That the National Convention for the revision of the U. S Pharmacopœia shall be composed of one delegate from each State medical society represented in the American Medical Association, one

delegate from each incorporated Medical College, incorporated College of Physicians and Surgeons, and incorporated College of Pharmacy throughout the United States, with one delegate from the medical department of the Army and one from the medical department of the Navy of the United States. That the delegate from each State medical society represented in the American Medical Association shall be nominated and elected by the said Association, the delegates from the said several colleges shall be nominated and elected by the said colleges, and the delegates from the two branches of the national service shall be nominated by their respective Surgeon-Generals, and be ordered by the Honorable Secretaries of the Army and Navy of the United States.

"That the said delegates shall be nominated and elected with special reference to their experience and knowledge of therapeutics and physiology, medical chemistry, medical botany and practical pharmacy, so that all classes of medical and pharmacal experts may be fairly represented in the National Convention, to the end that the Pharmacopœia of the United States may be thoroughly revised by a commission embodying the greatest practical knowledge and professional skill."

This plan, or a similar one, would do but little violence to the existing order of things; it would not interfere with any "Pharmaceutical Council" which any association may form, with a view to *aiding* pharmacopœial revision, and it would give us a truly representative convention, in which the American Medical Association would be recognized as well as all Pharmaceutical and other Colleges, not connected with that Association. There can be little doubt as to the advantage to be gained by a call emanating from the National Government—the presence of two government officials in the "Convention" would be a move in that direction; and as the formation of State Boards of Health is rapidly extending, the day may not be far distant when we shall have a "Minister of Health" to call our "National Convention," and to represent the great medical and sanitary interests of the country in the Cabinet of the United States. C.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Principles of Theoretical Chemistry, with special reference to the constitution of Chemical Compounds. By Ira Remsen, M.D., Ph.D., Professor of Chemistry in the John Hopkins University. Philadelphia: Henry C. Lea, 1877. 12mo, pp. 232.

As the title indicates, this volume is devoted to the principles upon which the theoretical structure of modern chemistry is based, and as such it is a very valuable addition to our literature, inasmuch as it discusses, in a clear and comprehensive manner, the various laws governing chemical combination and decomposition, and the various theories which have been advanced for explaining observed facts. Part first, being devoted to the general discussion of atoms and molecules, forms the ground-work for the second part, which treats of the constitution or structure of chemical compounds. Considering the multitude of compounds, and particularly the more complex ones of carbon, the so-called organic compounds, it is without question of considerable importance to the investigator to have a knowledge of the grouping together of the various elements forming a compound, since the nature of such groups, and their relation to each other, determine the chemical behavior of the body. Such considerations have gradually led to the adoption of the so-called structural formulas, which are explained in the second part, and in regard to which the author says:

As for the value of the structural formulas, which are discussed at some length in the second part of the book, it need only be said that, if it be borne in mind what they are intended to represent, they are not quite so absurd as some chemists are just now trying to make us believe they are. These formulas certainly represent known facts in regard to the constitution of chemical compounds. They do not represent these compounds as a photograph, for example, represents a building; but rather somewhat in the same way that, in Physics, lines represent forces in their magnitude and direction. Take the formulas

for what they are, and they have considerable value. Try to find in them the architectural plans of the chemical molecules, and they appear absurd. But it is very unjust to find fault with a thing for not doing what it never pretended to do, and what its originators have distinctly stated it could not do.

In our opinion, the work will prove to be a valuable aid to the chemical student who would familiarize himself with the theories of the science that have led to many important discoveries.

Die rationellen Formeln der Chemie, auf Grundlage der mechanischen Wärmetheorie entwickelt, von Baron N Dellingshausen. Zweiter Theil. Organische Verbindungen. Heidelberg: Carl Winter's Universitäts-Buchhandlung, 1877. 8vo, pp. 156.

The rational chemical formulas as evolved upon the base of the mechanical theory of caloric. Part II. Organic compounds.

While the preceding work bases its considerations upon the atomic theory, the one now before us is diametrically opposed to it. The atomic theory finds, among others, its main proofs in the alteration of the volumes of bodies and in the chemical laws of constant and multiple proportions; it is the author's aim to prove that the volume of the bodies depends upon the size, form and number of their vibration atoms, and that the combining proportions of bodies, or their chemical equivalents, are determined, without atomic composition, as the carriers of equivalent motions. The culminating point of the atomic theory is found in the modern theory of chemical structure, which finds its chief support in the explanation of the composition of the organic compounds (of carbon). This theory cannot be disproven by facts, because it does not directly depend upon such, but is altogether a chain of hypotheses: that bodies are composed of atoms and molecules; that the atoms attract each other; that they combine to molecules; that the polyvalent atoms neutralize each other; that unsaturated compounds may take the place of simple radicals. The proof, therefore, of explaining the rational formulas without presupposing the existence of molecules appears to the author to be the best weapon against the atomic doctrine.

The author has studied his subject very thoroughly. In 1875 (see "Am. Jour. Phar.," p. 479) we have noticed one of his works, a predecessor of the present one. Since then he has published another one, in which the inorganic combinations are explained by the mechanical theory, and the present one extends these considerations to the complex carbon compounds. When it is remembered that perhaps the great majority of chemists are in reality not convinced of the absolute correctness of the atomic doctrine, but rather have adopted its views, because most of the chemical facts observed may be explained thereby in an apparently natural and simple manner, it will be conceded that a work like the one before us is likely to have considerable bearing upon the evolution of chemical principles in the future.

Gmelin-Kraut's Handbuch der Chemie. Anorganische Chemie. Heidelberg: Carl Winter's Universitäts Buchhandlung.

There are now before us the first and second numbers of the second division of the second volume of Gmelin-Kraut's Chemistry, containing the metals titanium, tantalum, niobium and a considerable portion of tungsten. The revision of this

portion of the work is in the hands of Dr. S. M. Jörgensen, of Copenhagen, who has already, in an admirable manner, finished the third volume, comprising the metals of the iron, mercury and platinum groups; the subjects of the present numbers are equally complete.

Medicinal Plants, being Descriptions, with Original Figures, of the Principal Plants employed in Medicine, and an Account of their Properties and Uses. By Rob. Bentley, F.L.S., and Henry Trimen, M.B., F.L.S. Philadelphia: Lindsay & Blakiston. Parts 16, 17, 18. Price, per part, $2.00.

With the gradual progress of this interesting and important work, we have taken occasion to refer to it from time to time, and are pleased that now, when nearly one-half of it has been published, the favorable impressions received from the first few numbers have been altogether justified by the later ones. The parts now before us contain colored plates and descriptions of the following plants: Acacia catechu, Ac. Senegal, Achillea millefolium, Acorus calamus, Aristolochia serpentaria, Daphne gnidium, D. laureola, Diospyros embryopteris (used in India like the persimmon in this country), Eugenia caryophyllata, Ferula galbaniflua (not previously figured; one of the plants yielding galbanum), Lactuca virosa, Oryza sativa, Piper angustifolium (Matico), P. longum, P. nigrum, Punica granatum, Quercus robur, Q. infectoria, Rheum officinale (the rhubarb plant, figured with flowers and fruit; see "Amer. Jour. Phar.," 1876, p. 307), Santalum album, Soymida febrifuga (yielding the Rohun bark of India, a name by which also the nux vomica bark is known) and Toddalia aculeata (the parent plant of the Indian Lopez root).

Thirteenth Annual Report of the Alumni Association, with the exercises of the fifty-sixth commencement of the Philadelphia College of Pharmacy. 1877. 8vo, pp. 48.

We have already given, on page 198, an account of the proceedings at the annual meeting of the Alumni Association; besides the addresses, reports and minutes there mentioned, this report contains also the introductory lecture and an abstract of the valedictory address to the course 1876-77. Copies of the report may be obtained from the Secretary of the Association, Mr. Wallace Procter, 500 South Ninth street, Philadelphia.

Proceedings of the Connecticut Pharmaceutical Association, at the first annual meeting, held at the Allyn House, Hartford, Conn., Feb. 7, 1877. New Haven. 8vo, pp. 15.

On page 139 of our March number will be found a brief account of the second (first annual) meeting of this State organization. Upon perusal of this modest pamphlet, we cannot but congratulate our friends upon the commendable spirit which appears to have pervaded the transactions, and is more particularly evinced in the excellent address of the president and in the subject matter of the queries proposed and accepted. The latter refer to the perfection and strengthening of the organization, to apprenticeship, to the preservation of prescriptions, the labeling of medicines, the coating of pills, the powdering of extracts, the desirability of legislation and the fostering of associations for the benefit of pharmacists. From

the interest shown it is presumed that the contemplated semi-annual meeting during the coming summer will be as successful as the anniversary meeting.

The pamphlet contains a paper by Mr. R. H. Dimock proposing to prepare for dispensing a solution of phosphorus containing one-sixtieth of a grain, dissolved in 1 fluid drachm of glycerin, kept by means of a water bath at a temperature of 212°F. and in an atmosphere of carbonic acid.

Annual Report of the Supervising Surgeon-General of the Marine Hospital Service of the United States, for the fiscal year 1875. John M. Woodworth, M.D., Washington, 1876. 8vo, pp. 229.

Supervising Surgeon-General Woodworth presents in his report valuable and interesting statistics concerning the operations of this important service, and adds in an appendix nine papers, written by surgeons of the Marine Hospital Service, upon topics which they had special facilities to observe and investigate, and several of which possess such general importance and interest to commercial men and travelers as to deserve becoming more widely known and to claim the attention of Congress. The report is accompanied by two maps and four diagrams, in illustration of the various subjects.

Second Annual Report of the Inspector and Assayer of Liquors to the Commonwealth of Massachusetts. Boston, 1877. 8vo, pp. 39.

The report of Professor Babcock gives the results of 412 samples of wines and distilled spirits sent for analysis, about one-third of which number was found to be either of very inferior or ordinary quality, or more or less adulterated. Nine samples of ale and lager beer were analyzed and found to contain between 3·55 and 5·02 per cent by weight of alcohol, and between 3·20 (ale) and 7·75 (lager beer) of malt extract, etc. The report enters into the discussion of the manufacture of the liquors and the adulterations, as previously noticed.

Third Annual Report of the State Fish Commissioners of Minnesota, for the fiscal year ending December 31, 1876. St. Paul. 8vo, pp. 14.

We are obliged to Mr. R. O. Sweeney, chairman of the Commission, for this official report.

Year-book of Pharmacy, comprising Abstracts of Papers relating to Pharmacy, Materia Medica and Chemistry, contributed to British and foreign journals, from July 1, 1875, to June 30, 1876, with the Transactions of the British Pharmaceutical Conference at the thirteenth annual meeting, held in Glasgow, September, 1876. London: 1877. 8vo, pp. 640.

The publication of this volume, we regret to say, has been delayed, owing to the illness of its editor. We have noticed the former issues of this valuable annual, and it remains for us merely to state that it presents the same attractive appearance as its predecessors, and that the arrangement is nearly the same as heretofore. The "Year-book" occupies 380 pages, and the "Transactions," including the papers

read, about 170 pages. An account of the meeting will be found on page 473 of our last volume, and since then brief abstracts of several of the papers read have appeared in the "Journal."

There are several matters to which we desire to allude in this connection. A very important one is the creation of a fund, from which grants have been made amounting during the past year to £75, with the view of aiding original investigations. And it must be acknowledged that the money has been well spent. Though barely sufficient to cover the cost of the material, it has found its way into the hands of men who devoted their knowledge and time to the investigation of important subjects. At the next meeting of the American Pharmaceutical Association, the nucleus for a similar fund will be presented, and it is to be hoped that it may soon increase to a sufficient amount that those who desire to undertake investigations involving considerable outlay of money may at least be recompensed for this, since neither their labor nor the possible value of the results can be repaid.

The second subject deserving commentation is the long list of faithful members, far outnumbering those of the older Association on this continent. We have alluded to this on former occasions, but we recur to the subject again, and cannot but express our belief that with little effort on the part of each member the roll of membership might be considerably increased Even viewed merely as a matter of dollars and cents, the publications of the British and the American societies are worth by far more than the annual contributions.

The third subject to which we feel constrained to allude is the commendable fact that while the annual income of the British Conference for the first eleven years was merely sufficient for its annual expenditure, the two following years enabled the Conference to report a surplus of about £430, nearly the whole of which was invested in government securities. The American Pharmaceutical Association, we regret to say, cannot show such a sound financial record; after twenty-five years of its existence, it does, as in the past, meet its liabilities; but it has not been able to lay by a reserve fund. One of the causes is to be found in the stipulation of the old constitution, by which members who had paid ten annual dues became free from further contributions, but still enjoyed all the privileges of full membership; the other cause we have alluded to before: the small number of members, as compared with the large number of intelligent pharmacists.

We congratulate our brethren in Great Britain on their success, and we hope that, in this country, we may profit from their experience.

Official Bulletin of the International Exhibition, Fairmount Park. Philadelphia: 1877. No. 3. Educational Number.

The *permanent* international exhibition was formally opened May 10th, and is located in the "Main Building," with which our readers who have visited the Centennial Exposition last year are familiar. The "Bulletin" before us refers to the exhibits relating to educational matters, and contains also a map of the exhibition grounds and a general plan, showing the arrangement of the exhibition. We expect to notice, hereafter, such portions of the exhibition as may be of special interest to our readers.